

**EXTRA—
THE SECRET BLOB
STRATEGY**

THE VIDEO MASTER'S GUIDE TO

CENTIPEDE™

BY RON DUBREN

NOW, A WHIZ SHOWS BEGINNERS AND EXPERTS
HOW TO SCORE BIG WITH SUPER STRATEGIES AND TACTICS



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**ZAP! ZONK! BLEEP! BEEYOOO! PWAF!
WOMP! BAM! BANG! BLOOOP! BLORK!
BLIP! ZOW! KA-BAM! ZING! KA-BLOOIE!**

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one of the all-time arcade greats...
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THE VIDEO MASTER'S GUIDE TO CENTIPEDE

THE VIDEO MASTER'S GUIDE TO CENTIPEDE™

by
Ron Dubren

Illustrated by
Dusan Krajan



BANTAM BOOKS

Toronto New York London Sydney

THE VIDEO MASTER'S GUIDE TO CENTIPEDE

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Illustrations by Dusan Krajan

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For my mom, who gave an eager two-year-
old his first nickel to play pinball

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I'd like to thank all the CENTIPEDE players I came across in my research on the game. I learned a lot looking over the shoulders of many folks whose names I never got. My hat is off to all these unsung heroes.

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Extra special thanks to my wife, Pat, for typing the manuscript and for being such a great person to play with.

PREFACE

This book is a guide to the popular video game manufactured by Atari called CENTIPEDE™. It's a "how-to" book in the sense that its major purpose is to show the reader how to play this challenging game.

The book is divided into five sections. The introductory section discusses video games and books on video games in general and, more specifically, what makes CENTIPEDE so special.

Then there is a section devoted to describing all the elements of the game play.

The third section is devoted to strategy and the various tactics beginner, intermediate, advanced, and expert players can use to improve their game.

The fourth section discusses unorthodox strategies and tactics that can be used in departing from the conventional way the game is played.

The last section is addressed to various topics that will be of interest to the devoted CENTIPEDE fan.

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1

INTRODUCTION

WHY A BOOK?

This book is a guide to acquiring the skills and strategies that can significantly improve your CENTIPEDE game. It does not replace practice; it directs you to what you have to practice and how to do so more efficiently. It does not replace the value of observing others who are more skilled than you are, but it does help you to observe what is relevant. Nor, for that matter, does a book replace the value of a little friendly competition, but it can go a long way toward helping you equal the score.

So if you've ever wondered how those hotshots can do it; if you've ever felt as though you were cheated when that quarter buys you only a few seconds of "life"; if you've ever felt the humiliation of having someone look over your shoulder at what is obviously inept or inexperienced play, this book is for you.

Or even if you're one of the rare breed left who has yet to venture into the wonderland of video games, there's no better way to find the pleasure and fulfillment waiting for you than to focus in on one single video game and learn how to play it well.

CENTIPEDE is one of the best video games, one that will continue to hold your interest and to challenge and excite you.

WHAT'S SO SPECIAL ABOUT CENTIPEDE?

CENTIPEDE is a very easy game to play. Even the first-time player finds that a relatively random spray of shots nails a variety of targets and points. You stay alive long enough to feel proud, not humiliated, and encouraged, not discouraged.

But after a few more goes at it, you find yourself no longer content with the quick rewards that random shooting reaps, and you really want to get into the game. With each quarter, you see that it keeps getting a little more challenging and that you would like to get a little better at it.

CENTIPEDE is one of the easiest games to play but is difficult to master. For one thing, the pattern and timing controlling the major events in the game are random. Three of CENTIPEDE's primary adversaries (the Spider, the Scorpion, and the CENTIPEDE links) have no easily recognized pattern of movement once they do appear. Fleas attack haphazardly, dropping from any one of 30 positions.

From the first Mushroom field on, the entire game proceeds with completely unique patterns each and every time it's played. CENTIPEDE, more so than any other video game before it, is a game you never play twice, no matter how many times you play it.

CENTIPEDE won't be so easy on you. The game never lets up for a moment, never stops challenging you. It will tire you out, even exhaust you, but you'll never find it in the least bit boring. That's the best payoff for your time, money, and energy.

So there is no easy path here, no trick or gimmick that will let you beat the game. CENTIPEDE's unique challenge is that it absolutely demands that you improve your skills.

VIDEO GAME SKILLS

The primary physical skill at the core of any video game is hand-eye coordination. The action on the screen must be coordinated with your hands' actions on the controls.

Video games appeal to us because they challenge both our bodies and minds. In addition to "physical fitness," a good video game calls for "mental fitness." Without it, you'll never master a video game.

The following lists some of the mental skills required to be a good video game player.

1. Reaction time
2. Attention
3. Concentration
4. Planning and anticipation
5. Judgment
6. Perceptual organization
7. Timing and rhythm

8. Pattern learning and recognition

9. Memory

The short history of video games shows that innovation in a game is related to the type and variety of skills built into the game. The first video game to hit it big was SPACE INVADERS. It required both quick reaction time and excellent hand-eye coordination. Later big hits added skills like timing and rhythm (e.g., MISSILE COMMAND), planning and anticipation (e.g., ASTEROIDS), and pattern learning and recognition (e.g., PAC-MAN).

With each new game that hits the arcades, the only way to continue to challenge the players is to build in an ever greater variety of skills needed to conquer the game. A particular game may emphasize one skill more than others. In general, however, the better games build in many different skill components to keep the game both interesting and challenging.

The pattern learning and recognition required in a maze game like PAC-MAN could be found in previous maze games like SPECTER and TARG. PAC-MAN, however, made that skill the very heart of its game.

CENTIPEDE has no apparent single skill that stands out; no one skill is at the heart of the game. Instead, it offers an incredibly satisfying mix of just about every skill that has so far been used in past video games. Not only are so many various skills required, but they are each required at a high level in order to fully master the game. CENTIPEDE, in borrowing from the best of what has gone before, culminates in a peak game-playing experience.

The primary focus of the game is to destroy the attacking CENTIPEDE. Real mastery of the game comes from learning to deal with its three major diversions; the Spiders, the Fleas, and the Scorpions.

This book is aimed at helping you to appreciate the heart and soul of a great video game and, in so doing, guide you to the many hours of fun and enjoyment that it can offer you.

2

GAME ELEMENTS

DOWN TO BASICS

SCENARIO

The player is pitted against the CENTIPEDE, a segmented creature that appears at the top of the screen. The CENTIPEDE zigzags down through a field of Mushrooms in snakelike fashion while the player is shooting up at it from the bottom of the screen.

A Scorpion crosses the Mushroom patch at intervals to "poison" some of the Mushrooms. Poisoned Mushrooms cause the CENTIPEDE (and its links) to rush headlong to the bottom, making them more difficult to shoot.

A wily Spider and speedy Flea round out the enemies who are out to get your Shooter. Collision with these two foes or any segment of the CENTIPEDE results in the destruction of your Shooter.

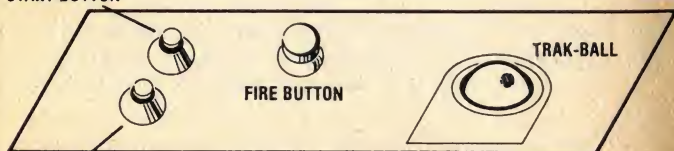
The player has three Shooters at the start of the game. A bonus Shooter is awarded for every 12,000 points earned.

PLAYER CONTROLS

1. FIRE Button

This is dual-action FIRE Button operated by your left hand. Single presses allow you to fire single shots, while continuous pressing allows you to fire continuously.

ONE PLAYER
START BUTTON



2 PLAYERS
START BUTTON

2. Trak-Ball

The Trak-Ball is a sphere about 2 inches in diameter set into a receptacle that allows it to be rotated in any direction. You can guide the movement of your Shooter anywhere in its Zone by rolling the Trak-Ball in the direction you'd like it to go. The Shooter always remains oriented up toward the targets wherever it is moved. The Trak-Ball is operated with the right hand.

3. Coin Slot

Beneath the Control Panel are two Coin Slots back lit by red light. Coins are placed in either side.

4. START Button

On the left of the Control Panel are two buttons back lit by red light. The one on the top starts the game when there is a single player, while the one on the bottom starts the game when there are two players.

WHO'S WHO

1. Weapon

Your weapon in CENTIPEDE is a diamond-shaped object resembling the head of a snake. In this book, we call it your Shooter. It has variously been called a gun, snake, turret, cannon, or ship.

2. Targets

a. CENTIPEDE

This segmented and elongated creature is composed of a head and tail "links." A head link has eyes and tiny little moving feet on each side. The tails have only the moving feet.


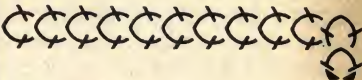






b. Spider

This creepy little guy has two spindly legs coming out of each side of his body that undulate as he moves across the screen.

c. Flea

This funny-looking fellow drops down the screen so fast you'll never really get a long enough look at him to see what he really looks like. Some people call it the Bomb because of the dive-bomber sound effect that accompanies its attack.

Fig. 1 CAST OF CHARACTERS

SHOOTER	
CENTIPEDE	
SPIDER	
FLEA	
SCORPION	
MUSHROOM	
POISONED MUSHROOM	
DAMAGED MUSHROOM	

d. Scorpion

This cute one could be taken for a sea horse, a snail, or even a dragon. Most people see it as a Scorpion.

e. Mushroom

The Mushroom is rather convincing, consisting of a straight stem topped off by a rounded hemisphere that stands for the cap. A Mushroom is "poisoned" when the Scorpion passes over it, and this is indicated by the Poisoned Mushroom's changing color.

Figure 1 shows you stylized drawings of the game's characters to help you recognize who's who.

OBJECT OF THE GAME

The primary object of the game is to use your Shooter to destroy all the CENTIPEDE links in any attack. Each CENTIPEDE attack always consists of a wave of 12 links. When you finish off all the links, a new attack wave comes out at the top of the screen.

A secondary object of the game is to kill all the CENTIPEDE links before any one of them reaches the bottom level and triggers the Side Feed, a continuous assault of more CENTIPEDE links directly into your Shooter's Zone from the side at level 7.

A third object of the game is to score points by hitting the various targets so as to earn extra Shooters.

PLAYING FIELD

The playing field is a rectangular area with its long axis oriented vertically to the player. It is divided into 30 vertical columns and 30 horizontal rows (or levels).

These rows and columns are not directly depicted on the screen. Their intersections represent the area in which Mushrooms can be planted. Figure 2 shows the playing field with lines drawn to represent the underlying 900 rectangular units (30 columns x 30 rows) into which the screen is divided.

The columns are numbered from left to right, and the rows are numbered from bottom to top. This is done so that you can easily locate and understand game situations.

CHARACTER ZONES

Each of the game's major character elements have a Zone that limits where it can appear and move. These are the characters' Zones:

Character	Zone
CENTIPEDE	Levels 1-30
Flea	Levels 1-30
Mushroom	Levels 2-30
Scorpion	Levels 13-30
Spider	Levels 1-12
Shooter	Levels 1-6

All characters may appear in any of the 30 columns making up the full width of the playing field. Figure 3 shows the area on the playing field corresponding to the characters' Zones.

Two further divisions of the playing field are indicated. The **infield** is the area from the bottom of the playing field at level 1 up to

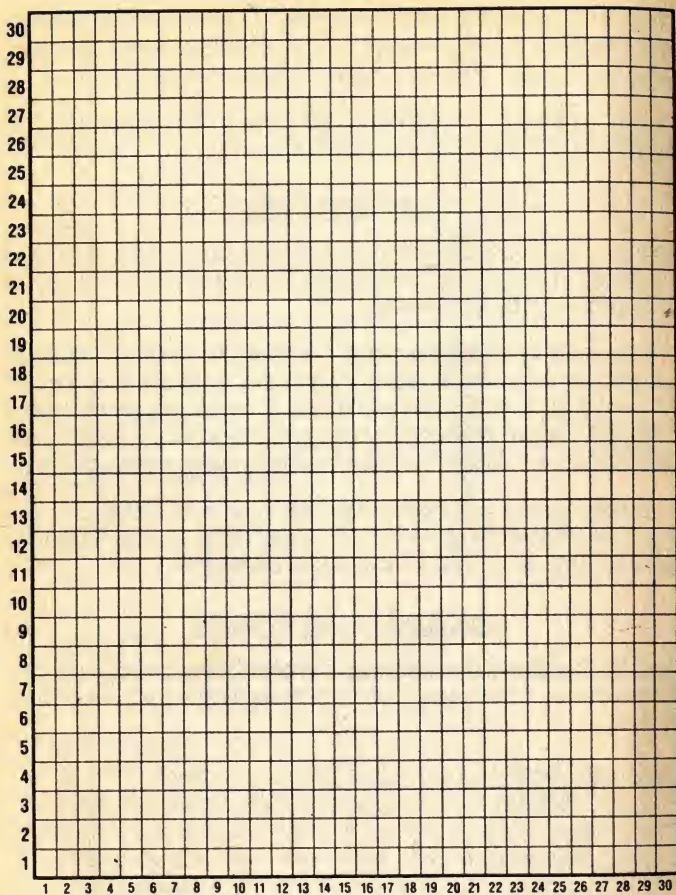
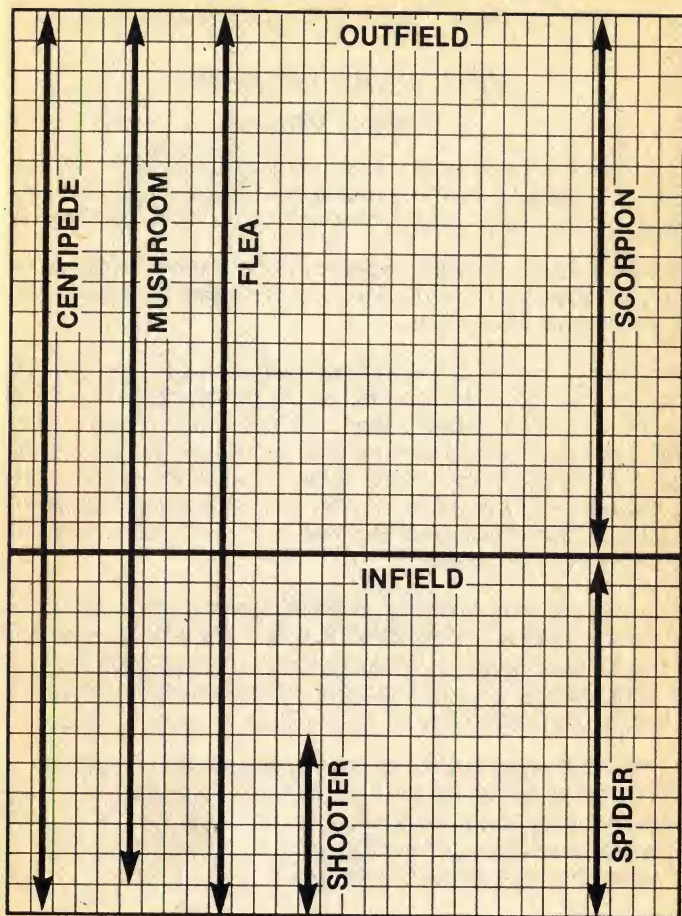
Fig. 2 PLAYFIELD

Fig. 3 CHARACTERS' ZONES



and including level 12, while the **outfield** is the area from level 13 up to and including the top of the playing field at level 30.

POINTS AND SCORING

1. Target Values

One of the unique features about CENTIPEDE is that every object that appears on the screen is a potential target. The only exception to this is your Shooter, which is your enemies' target.

Table 1 shows the points earned for the three categories of targets; the insects (Spider, Flea, and Scorpion), the CENTIPEDE itself, and the Mushrooms.

Notice that the Spider's value increases the closer you are to it when you shoot. This is only fair, as the closer you get to it, the more risk you run of being killed by it. To score the maximum of 900 points, you must be no more than one level away from the Spider. To earn 600 points, the Spider must be no more than approximately four levels away from you. More than four levels' distance between your Shooter and the Spider nets the minimum of 300 points.

Poisoned Mushrooms accumulate through the attack wave, as Scorpions pass over the Mushrooms. Added points are given for the Mushrooms destroyed during the wave and those that are damaged (i.e., ones that have only been partially destroyed with three or less shots).

Some Mushroom points are not registered until you get killed. Then, during a brief intermission, the computer ticks off each, one at a time, accompanied by a Gatling-gun sound effect. As the points are tallied, the damaged and Poisoned Mushrooms are restored to their original condition.

2. Score Register and Limits

Player 1's score is indicated in the register on the topmost upper left of the screen, while Player 2's score is in the register on the right. The maximum score that can be registered is six digits, or 999,999. The millionth point earned makes the register turn over to zero.

TABLE 1

Scoring and Points Table

Targets	Points
Insects	
Spider	
close range	900
medium range	600
far range	300
Flea	200
Scorpion	1,000
CENTIPEDE Links	
Head	100
Body Segment	10
Mushrooms	
Destroyed	1
Poisoned	5
Damaged	5
Bonus snake gun	every 12,000

3. Great Score!

(Entering Initials into the Vanity Table)

If you score one of five daily high scores on a particular machine or one of the three all-time high scores, you will be invited to enter your initials immediately after the game is over.

A three-letter set of initials can be entered, and the screen will show the letter "A" in the first-letter position. You use the Trak-Ball to advance through the alphabet, pushing it forward. If you overshoot the letter, reverse the direction of the Trak-Ball to go backward through the alphabet or to a blank.

When you have the letter (or a blank) you wish in the first position, you fix it by pressing the FIRE button. You may now enter a blank or letter in the second position by going through the alphabet again.

After all three letters are entered, the Vanity Table invitation will be replaced by the display of the eight-score Vanity Table, with your initials at the level your score positions you. See Section

Five if you want to know more about the inner workings of the Vanity Table.

4. Bonus Shooter

You have three Shooters to your credit at the start of the game. You earn an extra Shooter for each 12,000 points you score. Table 2 shows at what score levels you will earn the extra Shooter.

You are permitted to earn up to a maximum of six bonus Shooters. These are indicated by the Shooter's snake symbol on the right of each player's score.

You may **not** earn more than six Shooters. CENTIPEDE will not "store" any more than six in its memory. On the contrary, if you should have six bonus Shooters already and then reach the next bonus-score level (e.g., 108,000), you not only get cheated out of the next Shooter that was your due, but also you must wait until the next bonus level (i.e., 120,000) before you can earn another, and then only if you've lost a Shooter in the interim. You could conceivably pass through several bonus levels without earning an extra Shooter.

OPERATOR OPTIONS

Every CENTIPEDE comes out of the factory preset to give you three Shooters at the start of the game, to give you a bonus Shooter for each 12,000 points earned, and to make the Spider speed up after the first 5,000 points.

The operator can change these to make the game easier or more difficult to "match" the average ability level of those who play on that particular machine. The various options available are described in Table 3.

TABLE 2

Points Needed for Each Bonus Shooter

1	12,000	29	348,000	57	684,000
2	24,000	30	360,000	58	696,000
3	36,000	31	372,000	59	708,000
4	48,000	32	384,000	60	720,000
5	60,000	33	396,000	61	732,000
6	72,000	34	408,000	62	744,000
7	84,000	35	420,000	63	756,000
8	96,000	36	432,000	64	768,000
9	108,000	37	444,000	65	780,000
10	120,000	38	456,000	66	792,000
11	132,000	39	468,000	67	804,000
12	144,000	40	480,000	68	816,000
13	156,000	41	492,000	69	828,000
14	168,000	42	504,000	70	840,000
15	180,000	43	516,000	71	852,000
16	192,000	44	528,000	72	864,000
17	204,000	45	540,000	73	876,000
18	216,000	46	552,000	74	888,000
19	228,000	47	564,000	75	900,000
20	240,000	48	576,000	76	912,000
21	252,000	49	588,000	77	924,000
22	264,000	50	600,000	78	936,000
23	276,000	51	612,000	79	948,000
24	288,000	52	624,000	80	960,000
25	300,000	53	636,000	81	972,000
26	312,000	54	648,000	82	984,000
27	324,000	55	660,000	83	996,000
28	336,000	56	672,000		

TABLE 3

Operator Options

Option	Factory Setting	Operator Settings
Number of Shooters at start of game	3	2, 3, 4, or 5
Number of points to earn bonus Shooter	12,000	10,000, 12,000, 15,000, or 20,000
Speed of Spider	Starts slow, becomes fast at 5,000 points	Starts slow, becomes fast, at 1,000 or 5,000 points

THE CHARACTERS' ROLES

THE SHOOTER

1. Location

Your Shooter first appears at the bottom level of the playing field in the center of the screen. It turns up there both at the start of the game and following the loss of your previous Shooter (or "life") when you are being rearmed to face another CENTIPEDE attack wave.

2. Movement in Zone

The Trak-Ball controls the movement of the Shooter in a domain consisting of the bottom six levels throughout the entire width of 30 columns. The Shooter is free to move anywhere in this area other than over any Mushroom that is planted in it. The bottom level (i.e., level 1) can never be occupied by a Mushroom because Fleas never plant Mushrooms there and because CENTIPEDE links can only be shot above the Shooter. (Thus, it will not be possible for a Mushroom to replace a link in the bottom level).

These facts guarantee free movement of your Shooter along the bottom level. Mushrooms planted anywhere in levels 2, 3, 4, 5, or 6 will limit the freedom of movement of your Shooter in those regions. You must use the Trak-Ball to guide the Shooter around any Mushroom that blocks its path.

3. The Firing Mechanism

It is very important that you understand the difference between **repeat fire** and **rapid-fire**. A machine gun has a repeat fire mechanism. Once you press the trigger and keep it pressed, bullets will be fired at a constant rate until they are all used up. This is **not** the case with the CENTIPEDE Shooter. It gives you some potential for rapid fire but only under certain conditions.

The rapid-fire feature is governed by the following rule: **you can only have a single shot on the screen at a time**.* During the time your last shot is traveling to a target, neither pressing the FIRE button again nor keeping the FIRE button pressed will result in another shot's being fired. In either event, another shot can only be fired after your previous shot hits any target (or goes astray off the top of the screen).

In fact, if you were to purposely fire up a column with no Mushrooms (or other targets), you would see exactly how long it takes stray shots to repeat. This is the worst-case scenario, for the shot is traveling the longest possible distance and the gap between shots is maximized. But it would give you a "feel" for just how slow your so-called rapid-fire action can be.

On the other hand, firing a shot at a Mushroom on the level immediately above your Shooter's location will give the feel of extreme rapid fire. A shot traveling up only one level will be in the air for only one-thirtieth of the time needed for a shot traveling up all 30 levels. Also, each Mushroom is only partly destroyed with a single shot. You need to fire four shots in quick succession to destroy the entire Mushroom. A column of Mushrooms, one above the other, can be wiped out with blazing speed.

Pay attention to the varying rate of rapid fire to get the most out of the firepower made available to you. This firing mechanism also has specific consequences in the tactics you have at hand. More on that will be found in the upcoming section on strategy.

THE CENTIPEDE

1. The Primary Enemy

The CENTIPEDE is both your primary target and most dangerous enemy.

Collision of your Shooter with any CENTIPEDE link results in the loss of your Shooter (known also as getting killed or losing a life).

A single shot from your Shooter destroys any CENTIPEDE link. For every destroyed link, a Mushroom is planted.

*It can appear that there are many shots or bullets coming out of your Shooter. In fact, the single bullet is moving so fast that you are seeing a succession of images that make up its animation.

2. Attack-Wave Cycles

The CENTIPEDE emerges from the top of the screen at the start of any attack wave, traveling at a slow or fast speed. In the very first attack wave, the CENTIPEDE is whole and consists of a chain of 12 links, the first of which is its head. It comes out near the center (at the top of column 15) and travels fast.

In the second attack wave, the CENTIPEDE emerges in two parts, one as a chain of 11 links, the first of which is a head, and the other as a single head traveling alone, in this case traveling at the slow rate. The longer-linked segment comes out again, as it always will in the future, from near the center columns. The individual head comes out at a random location among the remaining 29 columns.

This same division is repeated in the next wave, only now each CENTIPEDE part travels at the fast rate again.

Table 4 shows the number of the attack wave, the CENTIPEDE's division into parts, and the speed it will be traveling.

Fast and slow waves will continue to alternate until you have achieved 40,000 points, at which point there will never be another slow wave for the duration of that game.

The exact number of slow waves will vary, then, with how soon you are able to get 40,000 points. If you did not reach 40,000 points, it is possible that the first attack-wave cycle could have as many as 25 slow waves. Or if you were to score 40,000 points in the first attack wave only (a distinct possibility—see the sections on the Blob and the Side Feed Game), you would never see any slow attack wave. Seasoned vets tend to rack up points more quickly than beginners and for that reason may only get one or two slow waves.

Fast-attack waves always repeat the chain- and single-link combination of the slow wave that preceded it. (The only exception is the intact 12-link fast chain in the first wave.) Once the slow waves have stopped, the distribution does not repeat. Rather, with each new wave, the chain is shortened by one link, and that link is added to the pool of single links in the wave.

This culminates in the last attack wave, consisting of 12 single

TABLE 4

Attack-Wave Cycles**First Cycle**

Wave No.	Speed	Number of Links in CENTIPEDE Chain	Number of Individual Links
1	Fast	12	0
2	Slow	11	1
2	Fast	11	1
3*	Slow	10	2
3	Fast	10	2
4	Slow	9	3
4	Fast	9	3
5†	Slow	8	4
5	Fast	8	4
6	Fast	7	5
7	Fast	6	6
8	Fast	5	7
9	Fast	4	8
10	Fast	3	9
11	Fast	2	10
12	Fast	1	11

Second Cycle

1	Fast	12	0
2	Fast	11	1
3	Fast	10	2
4*	Fast	9	3
5	Fast	8	4
6	Fast	7	5
7	Fast	6	6
8	Fast	5	7
9	Fast	4	8
10	Fast	3	9
11	Fast	2	10
12	Fast	1	11

*The Scorpion cannot appear until after the third wave of any cycle.

†The actual number of slow waves varies. After 40,000 points are scored, they stop.

Fig. 4 BREAKDOWN OF ATTACK WAVES

ATTACK WAVE CYCLE		LONG-LINKED CHAIN	SINGLE LINKS
1	2		
WAVE #	WAVE #		
1	1	CCCCCCCCCCCCC	
2 SLOW FAST	2	CCCCCCCCCCCCC	C
3 SLOW FAST	3	CCCCCCCCCCCCC	C C
4 SLOW FAST	4	CCCCCCCCCCCCC	C C C
5 SLOW FAST	5	CCCCCCCCCCCCC	C C C C
6	6	CCCCCCCCC	C C C C C
7	7	CCCCCCCC	C C C C C C
8	8	CCCCCCC	C C C C C C C
9	9	CCCCC	C C C C C C C C
10	10	CCC	C C C C C C C C C
11	11	CC	C C C C C C C C C C
12	12	C	C C C C C C C C C C C

links (see Fig. 4). One of these will emerge near the center column. The remaining 11 individual heads are randomly assigned to come out from the other 29 columns, with no more than one head assigned to any column.

Whenever you are killed, the specific attack wave that you were fighting off at the time will repeat. The only exception to this occurs in the rare event that you are killed by a Spider or Flea the instant after you have killed off the last CENTIPEDE link in the wave, in which case you will be advanced into the next attack wave.

3. How the Attack Drops Through the Mushroom Field

There are three basic rules governing the way the CENTIPEDE advances:

1. A chain or link travels along any level from one side of the screen to the other.
2. It drops to the next level and reverses direction whenever it hits (a) a Mushroom, (b) the side of the field, or (c) another chain or link.
3. Passing through a Mushroom from the top when dropping to the next level has no effect on the chain's or link's movement.

Figures 5-7 show some typical patterns of descent. The chain always comes out near the middle but randomly starts out in either a left or right direction. Individual links can emerge from any column at the top and also randomly start out on a course to the left or right.

Notice that the side walls affect the descent as if there were a permanently planted column of Mushrooms in the imaginary column to the left of column 1 and to the right of column 30.

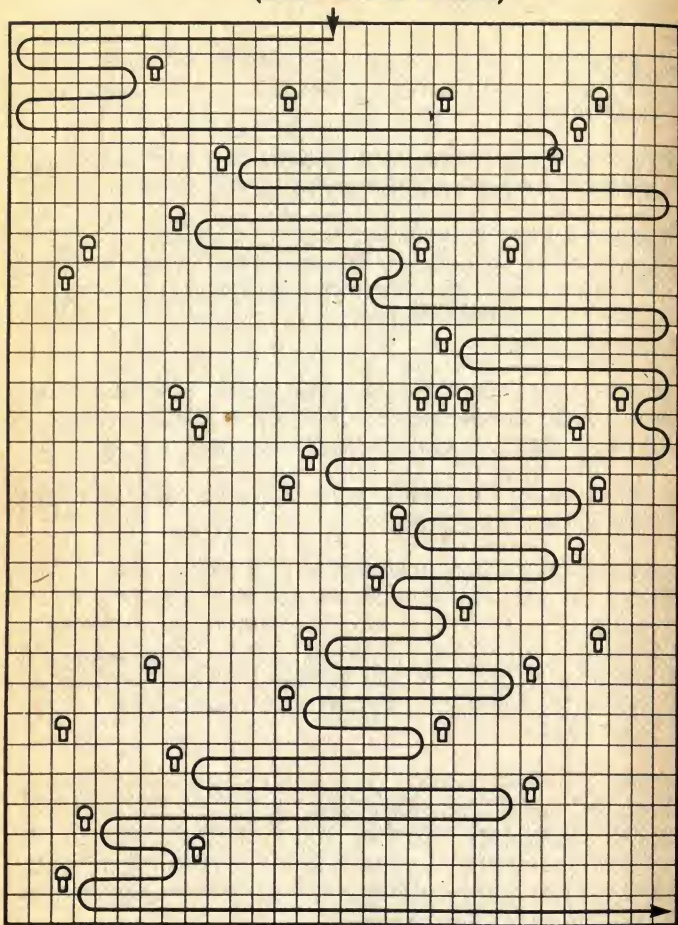
As more Mushrooms get planted in later attack waves, the CENTIPEDE's descent quickens.

Certain configurations of Mushrooms cause the chain or link to drop more quickly than others. For example, Mushrooms separated by one or more columns that occupy alternating positions from each level to the next result in zigzag descents. The width of a zigzag can vary, but the narrowest zigzag occurs in the situation in which only one column separates the alternating Mushroom.

Figures 8 A-F show typical zigzag descents with one to five columns separating the Mushrooms. Note that the narrowest zigzag is drawn as a straight line. In fact, the links involved in such a descent do move from one side of the open column to the other in a very narrow zigzag. No link ever drops down without showing at least this narrowest of zigzags.

Figure 8F also illustrates that the presence of other Mushrooms does not necessarily alter the zigzag pattern of descent. It is exactly the same as would occur in the pattern shown in Figure 8E.

**Fig. 5 TYPICAL CENTIPEDE ADVANCE—#1
(EARLY ATTACK SCREEN)**



**Fig. 7 TYPICAL CENTIPEDE ADVANCE— #3
(LATE ATTACK SCREEN)**

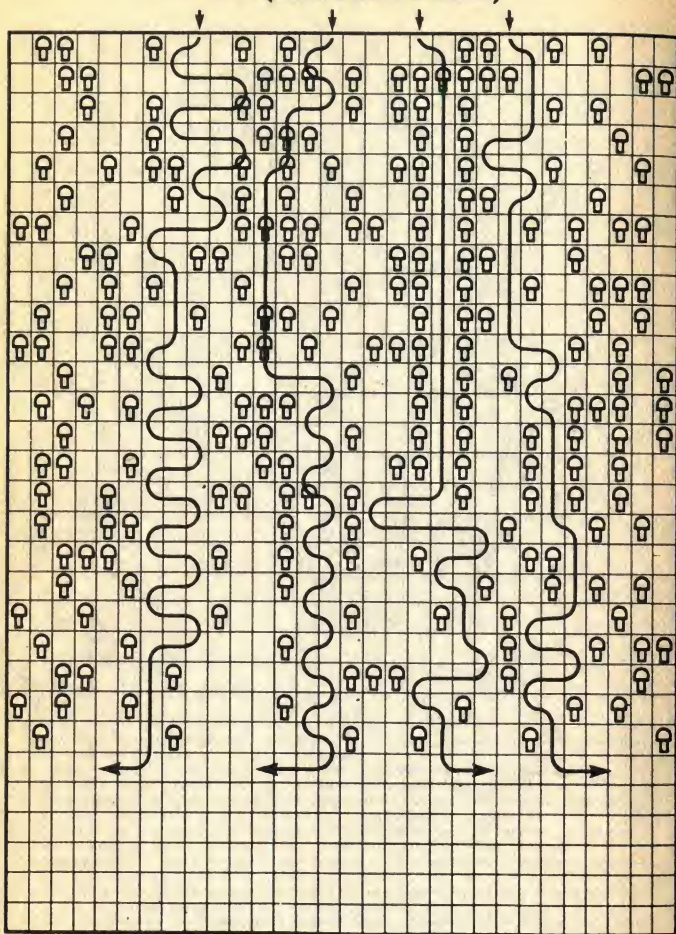
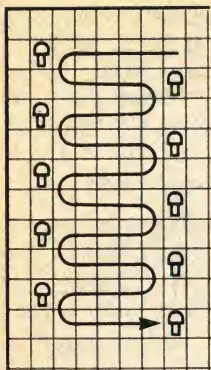
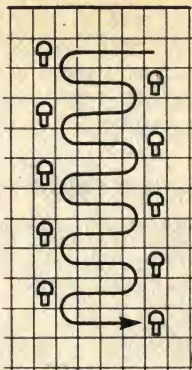


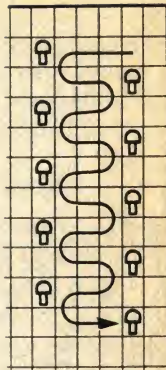
Fig. 8 ZIGZAG DESCENTS



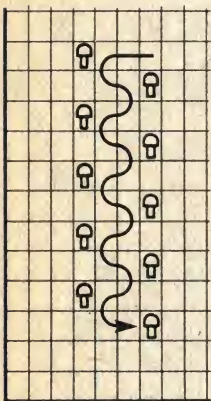
**A. 5-COLUMN
ZIGZAG**



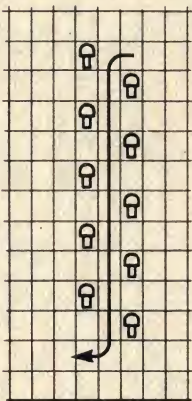
**B. 4-COLUMN
ZIGZAG**



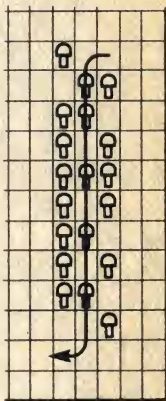
**C. 3-COLUMN
ZIGZAG**



**D. 2-COLUMN
ZIGZAG**



**E. 1-COLUMN
ZIGZAG**



**F. 1-COLUMN
ZIGZAG**

Track the CENTIPEDE

Figure 9A shows a typical Mushroom field. After becoming thoroughly familiar with the rules governing the CENTIPEDE's descent, take a pencil and see if you can guide each CENTIPEDE link indicated entering at the top of the screen in its path to the bottom. The correct pathways will be found in Figure 9B.

Fig. 9A CENTIPEDE DESCENT TRAIL—PRACTICE

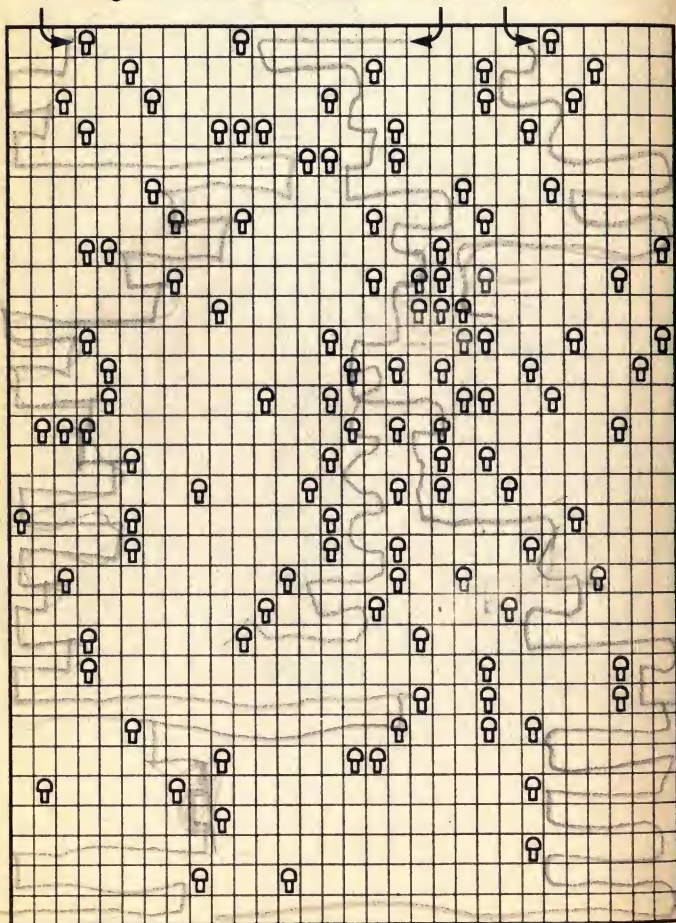
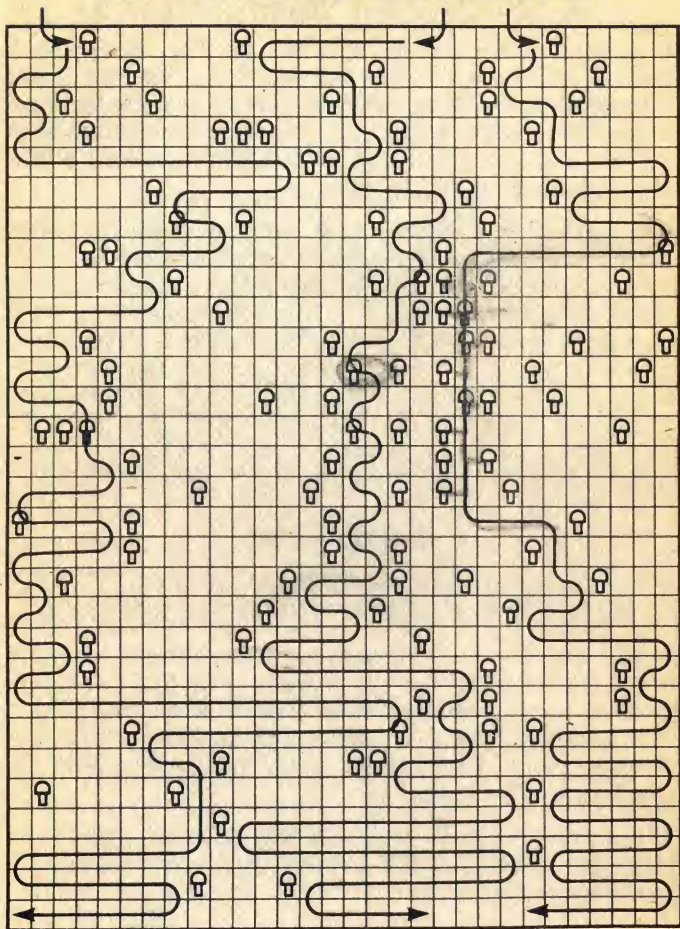


Fig. 9B CENTIPEDE DESCENT TRAIL—ANSWERS



4. Shooting the Chain and Links

Any CENTIPEDE link, whether head or tail, will be destroyed by a single shot and replaced by a fixed Mushroom. Shooting any of the tail links of the linked CENTIPEDE will result in creating two smaller CENTIPEDES, with its leading tail changed into a head. In this way, and only in this way, is it possible to create more than one multilinked CENTIPEDE chain.

Individual heads **do not** link up to create a longer CENTIPEDE unit. In the event that two heads cross paths and hit into each other, each advances down a level and reverses direction, no differently than if either head had hit a Mushroom. Similarly, in the above situation in which a linked CENTIPEDE is divided by a player hitting one of the middle links (i.e., body segments), the front part of the CENTIPEDE continues on its way, while the back part hits into the Mushroom (created by destroying the middle link), drops down one level, and reverses direction. The net effect is to have both segments traveling in opposite directions.

5. Side Feed

The main object of CENTIPEDE is to destroy all the CENTIPEDE links in any attack wave **before** any one of them hits bottom.

In the event a chain or link does reach the bottom level, it will trigger the Side Feed attack. A single CENTIPEDE head then emerges from the seventh level on either side of the playing field. Additional heads will appear and continue to appear at an ever-increasing rate of entry. Initially, the heads come in at a rate of about one every 3 seconds.

The only way to cut off the attack is to kill off every link on the screen before yet another link is fed in from the side. You have at most 3 seconds to do so.

The longer you take to cut off the Side Feed, the faster will the heads be fed in. If the Side Feed attack is triggered in a later attack wave, it will start at the rate of entry where it last left off. Eventually, the Side Feed attack is fed in so fast that only a single column separates each link from the appearance of the next.

The Side Feed's difficulty rests on how fast the links are being fed in. In its first stage, the first link is fed in about 3 seconds after the

Side Feed is triggered. Each succeeding link comes in a bit sooner than its predecessor, cutting about $1/8$ second off the 3 seconds with each new entry. By the time a dozen or so links have been fed in, the time between links is down to about one every $1-3/8$ seconds, changing only at every 10,000-point plateau. Now only about $1/20$ of a second is cut off the interval with each 10,000 points that are scored.

The second-stage clock ticks down whether or not the Side Feed is actually triggered. Therefore, it takes about 300,000 points for the clock to get the interval down to its shortest duration. After links are fed out at this fastest rate, the Side Feed turns over. The next time it gets triggered, the clock will have wound back up to the original 3 seconds at the start of stage one.

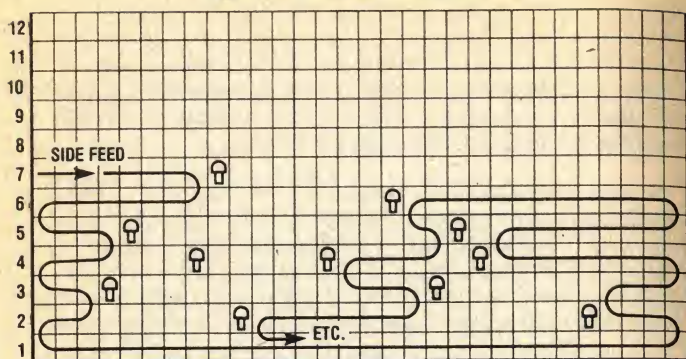
If you trigger the Side Feed before scoring your first 10,000 points and the first dozen or so links are all fed in, then the Side Feed attack cycle would turn over around 300,000 points. If, however, you do not trigger the first-stage links until later, it effectively postpones when the second stage of the Side Feed can be turned over, depending on how many 10,000-point plateaus you've gone through without triggering it. This means that the Side Feed cycle is usually turned over somewhere between 300,000 and 400,000 points, depending on the pattern and timing of when you trigger it in relation to your score.

6. The Retreat Loop

Any chain or link that hits bottom will travel along the bottom level until it hits the side wall, at which point it will rise up to level 2, reverse direction, and continue until it hits a Mushroom or the other side wall and then rise up to level 3. It will continue up in this way, following the same rules governing its former advance, until it travels along the sixth level, at which point it will start to descend again.

Links released at level 7 in the Side Feed attack will also follow the above rules.

Figure 10 shows the pattern of this advance and retreat "loop" taken by a typical link or chain (in this case, fed in from the side; the same pattern would have occurred if the link or chain had come from the top).

Fig. 10 RETREAT-LOOP CYCLE

THE SCORPION

1. Poisoning the Mushrooms

The Scorpion's main role is to poison the Mushrooms. It may come out from either side of the field at any level from 13 to 30, but it does not appear until after the third wave of any cycle. It crosses the field, poisoning every Mushroom it passes over on that level. A Poisoned Mushroom changes color to indicate it is poisoned.

The Scorpion can be destroyed while it is crossing the field. If destroyed, those Mushrooms already passed remain poisoned.

Mushrooms remain poisoned until the player loses his Shooter. When this happens, all Poisoned Mushrooms return to normal, and the player begins the attack-wave with a completely unpoisoned Mushroom field.

Up to 20,000 points, the Scorpion always travels at a relatively slow rate across the field. After 20,000 points, the Scorpion travels very quickly on about three-quarters of its crossings and reverts to the slower rate for about one-quarter of its crossings.

2. The Effect of Poisoned Mushrooms on the CENTIPEDE

Any CENTIPEDE chain or link that hits a Poisoned Mushroom from either side (but not from above) is itself poisoned. The result is that the poisoned chain or link no longer follows the rules governing its former descent through the Mushroom field.

Instead, it ignores the remaining Mushrooms and tumbles directly to the bottom of the field. Also, unlike a nonpoisoned chain or link, when it does get there, it makes an immediate turnabout, rising at once to the second level. From this point, it retreats up to the sixth level, following throughout the same rules governing the retreat-advance loop as any nonpoisoned chain or link does. In effect, bouncing off the bottom level "cures" it of its poisoned state.

Figure 11 shows the path of a few links through a field with a patch of Poisoned Mushrooms in the twenty-sixth level.

3. The Antidote

Any CENTIPEDE chain that has been poisoned by touching a Poisoned Mushroom can be unpoisoned by hitting the head link of the chain with a shot from your Shooter. The new head that is formed from the link behind it will now lead the chain it composes down through the Mushrooms according to the usual rules governing the CENTIPEDE's advance.

However, if there is another level of Poisoned Mushrooms beneath it, a second poisoning can occur, and once again the chain would tumble directly to the bottom.

THE FLEA

1. The Dive-Bombing Enemy

The Flea is one of three primary targets. It is also your enemy because you'll lose a life if it collides with your Shooter.

The Flea emerges from the top of any of the 30 columns of the playing field and then drops straight to the bottom in that same column. No more than one Flea can drop at a time. It can drop

at two speeds, fast and very fast. It can also change speeds in middescent, going from fast to very fast (but never from very fast to fast).

It takes **two shots** to destroy a Flea. The only way your shots will destroy a Flea is if it is hit after passing all the Mushrooms in the column in which the Flea is dropping.

Fleas can appear in quick succession from any column, a new one dropping immediately after the previous one is destroyed. If a Flea drops through the Mushroom field unharmed, there will be a slight delay before the next one is released. On occasion, Fleas will drop from the same column in succession.

No Fleas will ever appear in the first attack wave of any attack-wave cycle. Nor will a Flea drop any time a Scorpion is crossing the Mushroom field. Likewise, no Scorpion will appear as long as Fleas are dropping.

2. Mushroom Planting

Whenever a Flea drops, it plants new Mushrooms as it descends. Both the number of Mushrooms planted and the levels on which they are planted randomly vary on each descent.

The main purpose of these newly planted Mushrooms is to increase the speed of the CENTIPEDE's descent.

3. Preventing the Flea Attack

A Flea can plant Mushrooms on any of 29 levels it passes through on its descent. Mushrooms planted in the infield (i.e., levels 2-12) serve the function of terminating the Flea attack.

At the start of the game, for example, five Mushrooms planted anywhere in the infield's 30-column width will prevent Fleas from being released. If you destroy one of these Mushrooms (or if a Spider eats it up), then the Fleas will start coming down again. They will stop once again if:

1. One of the new Fleas planted a Mushroom in the infield, bringing the total to five or more, or
2. You destroy a CENTIPEDE link on the infield, replacing it with a Mushroom.

When the Fleas drop is controlled by the number of Mushrooms in the infield at any one time. As you score more points, the number of Mushrooms needed to be planted in the infield to prevent the Fleas from coming out increases. This change is graphically depicted in Figure 12. The actual number of Mushrooms needed at various score levels is shown in Table 5.

Fig. 12 SEESAW FACTORS OF FLEA ATTACK

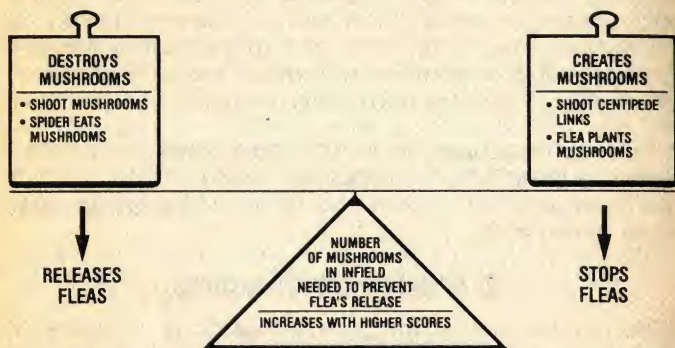


TABLE 5

Number of Mushrooms Needed in Infield to Prevent Flea Attack

Score	Number of Mushrooms
Up to 20,000	5
Up to 120,000	9
Up to 140,000	15
Up to 160,000	16
Up to 180,000	17
Up to 200,000	18
Up to 220,000	19
Up to 240,000	20
Up to 260,000	21
Up to 280,000	22
Up to 300,000*	23

*For every 20,000 points, add one more Mushroom.

THE SPIDER

1. The Tempter

A single shot destroys the Spider. It's a juicy target worth up to 900 points. It is also an alluring but elusively dangerous enemy that will destroy you on contact.

Once a Spider is shot, the next Spider will appear about 4 seconds later, on either side of the playing field at random. If you fail to shoot a Spider on its pass across the Mushroom field, the next Spider will appear a little less than 2 seconds after its predecessor's exit, again randomly from either side of the field.

2. The Mushroom Eater

The Spider eats any Mushroom it happens to pass over on its travels from one side of the Mushroom field to the other.

3. Movement Across the Screen

The Spider enters from either the left or right side of the playing field near the top of the infield (level 12). The Spider always exits on the side of the screen opposite where it entered. It **never** reverses its direction of movement.

4. Speed and Zone Coverage

The Spider travels slowly up to 5,000 points on the easy setting or to only 1,000 points if it is set at the more difficult level. The setting is established by the manufacturer, but may be altered by the arcade owner. In either case, after the setting score is reached, it will only move fast from then on.

The Spider travels in a Zone 30 columns wide up to and including level 12. This Zone will be called the **window**. Once the player scores 80,000, the window of this Zone narrows one level. For each additional 20,000 points, the window continues to narrow by another level. At 160,000 points, the window is at its narrowest, allowing the Spider to rise no higher than the seventh level. At 860,000 points, the window suddenly expands, reverting back to its original breadth, allowing the Spider to rise again all the way through to the twelfth level. Table 6 summarizes these observations.

TABLE 6

Spider's Zone Based on Score

Score	Maximum Height Spider Can Rise (Level)
0- 79,999	12
80,000- 99,999	11
100,000- 119,999	10
120,000- 139,999	9
140,000- 159,999	8
160,000- 859,999	7
860,000+	12

5. Crossing Movement and Patterns

The Spider makes two basic movements: it slashes across the field, moving up or down at a 45° angle, or it dives down or rises up vertically.

If the Spider makes more than one vertical movement in succession, it will appear to bounce in a holding pattern.

Any vertical movement can carry it up or down to any height within its Zone. Sometimes a bounce is regular in that the low and high points are repeated, at other times, it is irregular in that there are varying low and high points within the same holding pattern.

The Spider always enters its pattern from either side of the field at level 12 and heads in on a downward trajectory. The simplest of its patterns occurs when it only slashes across the screen, omitting any vertical move (Fig. 13). (All the illustrations depict the Spider's entry from the left; the resultant patterns would be reversed if the entry had been from the right.)

The next type of pattern shows the Spider slashing to the bottom level and rising back straight up (Fig. 14). We also see the Spider entering a vertical holding pattern for two rises and one dive before exiting. Figure 15 shows just how elusive and complicated a Spider's crossing can become. The spider need not touch bottom, can bounce several times either regularly or ir-

Fig. 13 SPIDER CROSSINGS

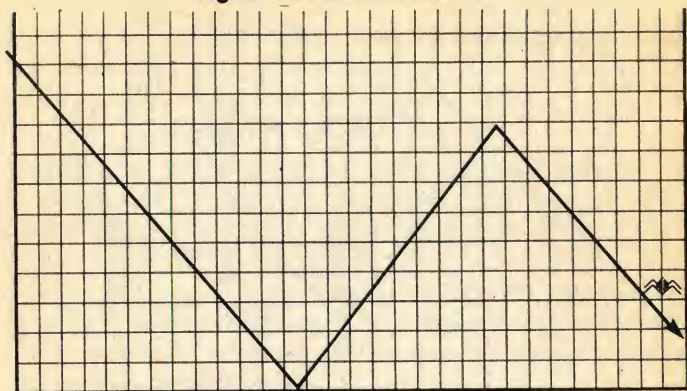


Fig. 14 SPIDER CROSSINGS

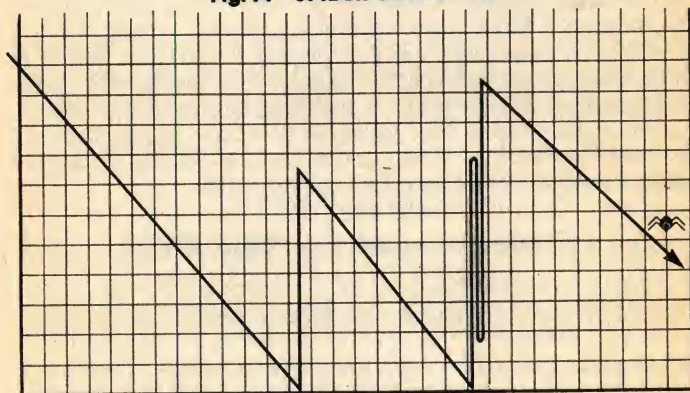
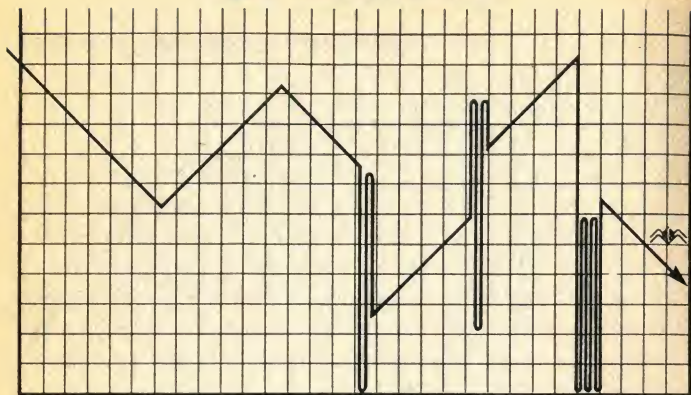


Fig. 15 SPIDER CROSSINGS

regularly, and can slash off in any direction at any point during a vertical dive or rise.

Another factor in these patterns is the shrinking of the Spider's Zone after your score reaches 80,000 and over. With each narrowing of the window, its patterns become effectively faster, more elusive, and more dangerously close to your Shooter. The Spider is most dangerous after 160,000 points, when it rises no farther than the seventh level.

6. Deflections off the CENTIPEDE

The Spider is programmed to ricochet off the CENTIPEDE or any of its links. This can create rather unusual patterns of movement.

In rare instances, it can seem to move horizontally. This occurs when the Spider gets trapped between the level that fixes the upper limit of its movement and a CENTIPEDE traveling horizontally one or two levels below it. The Spider is ricocheting back and forth in the narrow corridor between, slashing along at a very fast staccato clip. It happens so fast that it gives the illusion that the Spider is actually moving horizontally, when in fact it is being piggybacked on the CENTIPEDE.

What is even more dangerous is when a Spider gets caught **below** a CENTIPEDE in, let's say, the third level and then ricochets

back off the bottom level, to be swept along in the CENTIPEDE's path. This causes a sure-fire loss of life, sometimes because it's so unexpected and other times because you are trapped under the CENTIPEDE and have no escape.

7. Is the Spider Smart?

A key issue in understanding the Spider's danger is whether or not it has been programmed with intelligence; that is, does the Spider "know" where your Shooter is? Is it able to calculate a trajectory that aims it right at you?

Some players are absolutely convinced that the Spider can track your Shooter in this way, but the Spider, though quick and unpredictable, is not directly out to get you. It cannot and does not track in on your Shooter.

What does happen is that your attention is drawn away from the Spider to other target objectives and you plant yourself in its pathway. The Spider's movements are also designed to lure you into its trajectory, especially when it throws out the dangerous bait of bouncing in place. Such temptation is hard to resist despite the fact that it exposes you to imminent danger. Going for the Spider at any time is like throwing yourself in front of a moving car; you put your life on the line.

THE SOUNDS

The sounds in CENTIPEDE are an important part of the game's continuing appeal. Not only are they imaginative and fun, but they vitally contribute to helping you play the game. Each significant event has a specific characteristic sound connected to it.

1. The CENTIPEDE

The CENTIPEDE makes a thump, thump, thump sound that is the heartbeat of the game. As long as there's a single link on the screen, it provides a constant reminder of the persistence of the attacking CENTIPEDE.

2. The Spider

The eerie wind chime that accompanies the Spider is totally

soothing, part of the wily Spider's charm. Don't be soothed into calm passivity. It's a call to arms, one to perk up your ears and eyes the instant you hear its dangerous tinkling.

3. The Flea

To the air-raid shelters! The bombs are dropping. These dive bombers whistle down in a blink of the eye, their pitch dropping quickly to deadly ground zero. Listening for them will often save your life.

4. The Scorpion

The Scorpion scurries across to its own hurry-up beat. Now you hear it; now you don't.

5. The Bonus Shooter

There's no sweeter music in CENTIPEDE than the trumpet call letting you know you've just racked up another Shooter. The bugle charge that's sounded is there to spur you on, to give you the courage to fight on forever, if need be.

6. The Mushroom

As if to compensate you for the loss of a life, CENTIPEDE tallies up the extra Mushroom points you've earned. One by one, each Mushroom, damaged and poisoned, is restored to normal to the chugging beat of a Gatling gun in battle. Once the chugging is over, you're back into a battle of your own.

7. The Shooter

The sound of each shot gets spaced out or bunched up, depending on how close your targets are from the Shooter. You can use the duration of single shots to judge when your firepower is available.

THE MUSHROOMS

The Mushrooms are the organic core of the game, playing many roles in relation to all the other characters.

- The Flea plants them.

- The Spider eats them.
- The Scorpion poisons them.
- The Shooter destroys them, yet re-creates them from the body of the CENTIPEDE.

By governing the pattern of the CENTIPEDE's advance, the Mushrooms structure the tempo and pace of the game. At the same time, they impede the Shooter's freedom of movement. Moreover, perhaps the most important of their roles is that their number in the infield controls the release of the Fleas.

Don't forget that it takes four shots to destroy a Mushroom completely.

3

STRATEGY AND TACTICS

INTRODUCTION

OVERVIEW

This section will give you the strategies and tactics of good CENTIPEDE play. Strategy is basically looking at the rules of a game to formulate some sort of overall scheme or plan to give you an advantage. Tactics address the specifics of situations as you encounter them. What do I do now!

Here we'll deal with the traditional approach to playing the game. In a later section, we'll turn to more unorthodox ways to play.

We recognize that players may come into this book with various degrees of proficiency at playing the game. Therefore, we're now going to give you the chance to rate yourself.

RATING YOUR LEVEL OF PLAY

How do you know how good you are? Don't use your highest score. We'd rather you rate yourself according to the four specific milestones listed below:

- BEGINNER** -Earns an extra Shooter.
- INTERMEDIATE** -Gets through the first attack-wave cycle.
- ADVANCED** -Gets through the second attack-wave cycle.
- EXPERT** -Gets through the Side Feed cycle.

That, in a nutshell, is what you're shooting for. It precisely defines your skill as a CENTIPEDE player. Of course, if you've never played the game before, you would be classified as a novice. You don't start out as a beginner; it's a worthy rank you work to achieve. Moreover, you don't easily move up in the ranks.

For example, it's not enough to get through the first attack-

wave cycle just once in order to earn full intermediate status. You must do it **consistently**, that is, more than 50 percent of the games you play—similarly with any other elevation in the ranks. A fluke good game may satisfy your ego. Frankly, however, it's still a fluke.

To make the most of this book, read all the strategy and tactics sections regardless of what level of play you've already achieved. If you jump in exactly at your own level of play, understand that you might also miss out on some tactic or perspective discussed earlier.

Tactics may change depending on the level of expertise you've achieved. It's not possible to use an advanced tactic calling for precise shooting skills before you have practiced and perfected the shooting skills.

For example, our overall approach to the game suggests that there is a primary target objective at each skill level of play. The majority of points earned at any level of play will come primarily from the indicated target at that level. Table 7 summarizes the four levels of play, the milestone and primary target objective associated with each level, and the range of points you will score at that level.

TABLE 7

Milestone, Primary Target, and Scoring Range for the Four Skill Levels of CENTIPEDE Play

Skill Level	Milestone	Primary Target Objective	Scoring Range (points)
Beginner	Earn extra shooter	CENTIPEDE	6,000–19,999
Intermediate	Turn over first attack-wave cycle	Flea	20,000–79,999
Advanced	Turn over second attack-wave cycle	Spider	80,000–299,999
Expert	Turn over Side Feed cycle	Side Feed CENTIPEDE Links	300,000+

The one thing to keep in mind is that reading about how to play the game does not replace the need to practice. All of these tactics will go in one ear and out the other unless you bring them to the game itself.

THE BEGINNER'S GAME PLAN

GAME EVENTS REVIEW

(up to 19,999 points)

- **Five Mushrooms needed in infield to prevent Flea attack.**
- **Fleas drop fast; if shot only once, very fast.**
- **Attack waves alternate slow and fast.**
- **Spider speeds up at 1,000 points (hard setting) or 5,000 points (easy setting); Spider's window wide open, from level 1 to level 12.**
- **Scorpion crosses slowly.**

The key thing the beginner must remember to do is to go after one basic target—the CENTIPEDE. This is your overall game plan and should always be uppermost in your mind. You do this not only because the primary objective of the game is to destroy all the links in an attack wave but also because you're too inexperienced to risk going after any of the more juicy targets. They are there precisely to tempt you, to lead you astray.

The amount of points you can score when limited to the CENTIPEDE is nowhere near as many as you might get if you went for other targets. This fact alone will sorely tempt you to go for the juicier ones.

If you want to grow in the game, it's necessary to give up the short-term reward that a fluke high game offers. Skill, not score, is the real stuff of the game.

The more you concentrate on the CENTIPEDE, the faster your shooting skills will develop, and these are essential to further progress.

CLEAR THE SHOOTER'S ZONE

Beginners assume that because the CENTIPEDE is their primary target, it should be shot at from the very start of the attack wave. In fact, your primary objective should be to clear out all the Mushrooms in the Shooter's Zone (levels 2-6).

This serves several functions:

1. It gives your Shooter freedom of movement.
2. Fewer Mushrooms slow down the CENTIPEDE's advance when it gets to your Zone.
3. It allows you to shoot the Fleas higher up in the Mushroom field. This is because the lowest Mushroom in any column absorbs a shot aimed at a Flea dropping in that column. Also, the higher up you can shoot a Flea, the easier it will be to continue to keep the Shooter's Zone clear of Mushrooms.

You should avoid wasting shots to clear Mushrooms in the outfield. There is an important time advantage of shooting only the Mushrooms in the first six or seven levels. Your Shooter can be situated directly under any Mushroom in levels 2-7 at the closest possible range.

To start, wipe out the Mushrooms one column at a time, up to level 7, moving from left to right (or right to left, if you prefer). To do this, bring your Shooter directly under the bottommost Mushroom, press your FIRE button, and keep it pressed, raising the Shooter higher into the column as each Mushroom is shot away. Once a column is cleared to level 7, go on to the next column.

This primary clearing of the Shooter's Zone should take place in the first attack wave. Not only are there few Mushrooms in the outfield to slow the CENTIPEDE's advance, but also the CENTIPEDE is entirely intact, which will make it easier to shoot once it does get closer to the infield. Since there are no Fleas dropped in any first attack wave, no Mushrooms can be planted by them to undermine your handiwork in your Zone.

Although these events change in later attack waves, the essential rule remains the same: clear out the Mushrooms in your Shooter's Zone at the start of any attack wave.

This is a good time to mention the importance of the bottom level to the beginner. You should venture out only to clear Mushrooms from your Shooter's Zone but then quickly return to the bottom. Think of it as home base.

You should develop the habit of rolling back on the Trak-Ball to ensure that you are "touching" bottom. This will counter another beginner's tendency, that of pushing the Shooter up toward the target and bringing about a needless collision. This is often done as part of your attempt to move the Shooter laterally. The Trak-Ball is very sensitive to the slightest deviation in its rotation. You must learn how to keep the Shooter traveling along a level, not up to the next.

Pushing the Shooter toward the target, however, can be part of an aggressive style of play that will later serve you well. For now, however, continue to play it safe.

LOOK OUT FOR THE SPIDER!

Clearing the Mushrooms would be a simple task were it not for the Spider. You cannot move around the Spider's Zone recklessly. Chances of a collision are almost certain unless you pay specific attention to the appearance and crossing of the Spider.

There are two ways to cope with the Spider: (1) **stay out of its way** or (2) **shoot it**.

The beginner is best advised to take the former tack, at least initially. This is especially true at the start of the attack wave when time should be reserved for clearing out the Shooter's Zone.

The key to avoiding the Spider is to remember that once it enters from either side of the field, **THE SPIDER CANNOT REVERSE ITS DIRECTION**. It can slash across at a 45° angle or can bounce in any column for as long as an eternity, but it can never turn back.

This means that as long as you can safely slip your Shooter under the Spider and get to the other side of it, the Spider can no longer destroy you on that pass. The best way to do this is to position your Shooter in the center of the screen at the bottom level until the Spider makes its entrance. Stay there until the

Spider starts to rise in its first vertical bounce, at which point whip under and by it.

Congratulations! You are now free to wipe out as many Mushrooms as you can, trailing safely behind the Spider to its eventual exit.

You have been warned to avoid the Spider and stay out of harm's way, but if you **must** flirt with danger, then at least be properly armed. Ducking under the Spider gives you a chance to get a feel for the pattern and timing of its extremely elusive movements. Shooting Mushrooms is one thing—a potshot at a stationary target. But Spiders—that's a whole new jungle, and before you tangle with it, you better know how to use your weapon.

SECRETS OF THE FIRE BUTTON

Rapid-fire effects from closeup shooting of Mushrooms can give your finger the feeling that it controls a machine gun with repeat action. One of the main pitfalls in learning the game is keeping the FIRE button pressed in the mistaken notion that it will keep firing at a furious rat-a-tat pace. There is nothing more self-defeating than laying on that FIRE button any longer than absolutely necessary to do the job.

Don't shoot wildly or spray shots randomly up the field. Too much precious time is lost to those stray shots that go to the top of the screen. In the half second it takes, you're left defenseless, absolutely unable to fire again. The key point here is to **always have a shot when you need it**.

Get into the habit of laying **off** the FIRE button, not laying on it. However, your finger should always be poised over the FIRE button, ready to pounce on it the instant it's needed for any target or target cluster.

TAKING ON THE CENTIPEDE

1. The Primary Target

Up to now, we've said nothing about shooting the CENTIPEDE. This may seem strange since the primary object of the game is to wipe out the attacking CENTIPEDE. Novices have a natural

tendency to start shooting at the CENTIPEDE as soon as it appears. They fail to realize that long shots up the screen use up precious time that can be used to advantage in clearing your Zone of Mushrooms. Long shots often result in splitting the CENTIPEDE chain into smaller chains. The more the CENTIPEDE divides, the harder your task can become. Since each new attack wave will split off isolated heads of its own accord, there's no reason to add to your troubles by helping along the division of the CENTIPEDE.

The moment you have cleared out your Shooter's Zone, however, you switch your focus and start to shoot directly at the CENTIPEDE. Don't go for the Scorpion or the Flea. The Spider should only be considered fair game on the most certain kills and no more.

Accurate shooting is vital to your success. As the CENTIPEDE and its links are the only targets you must destroy to end the wave, the primary focus of your shooting skills must be directed at the CENTIPEDE.

2. Shooting Skills

a. Channel Shots

One of the greatest mistakes a beginner will make is to move his Shooter all over in a frantic pursuit of the CENTIPEDE. This is especially true once you enter the waves in which the CENTIPEDE starts out split up. Moreover, those inevitable stray shots further divide the CENTIPEDE, adding to the scattered onslaught.

However scattered the links become, the most efficient tactic for shooting them is to **keep your Shooter in one place**. First, it allows you to set up the timing of your shots. Second, it saves time and energy. The winding path of the links across the screen will usually lead back over the column where your Shooter is. Third, staying in one place minimizes your exposure to danger from Spiders, Fleas, and other links.

Where is the best place to dig in with your Shooter? Ideally, you'll want to place yourself under any column that is entirely free of Mushrooms from the bottom level to fairly high up into the outfield. In the opening attack wave, there are relatively few

Mushrooms on the screen, so you'll be able to find several of these open channels. In later waves, even after the Flea starts planting Mushrooms, you'll be able to find columns with only one or two Mushrooms planted lower down that you can first clear out to open a channel.

By committing yourself to firing up that channel and that channel only, you'll soon discover that you can polish off a good many of the links as they go across the field. What you are doing, in effect, is knocking off a link or two at a time as they pass back and forth over your line of fire on their way down.

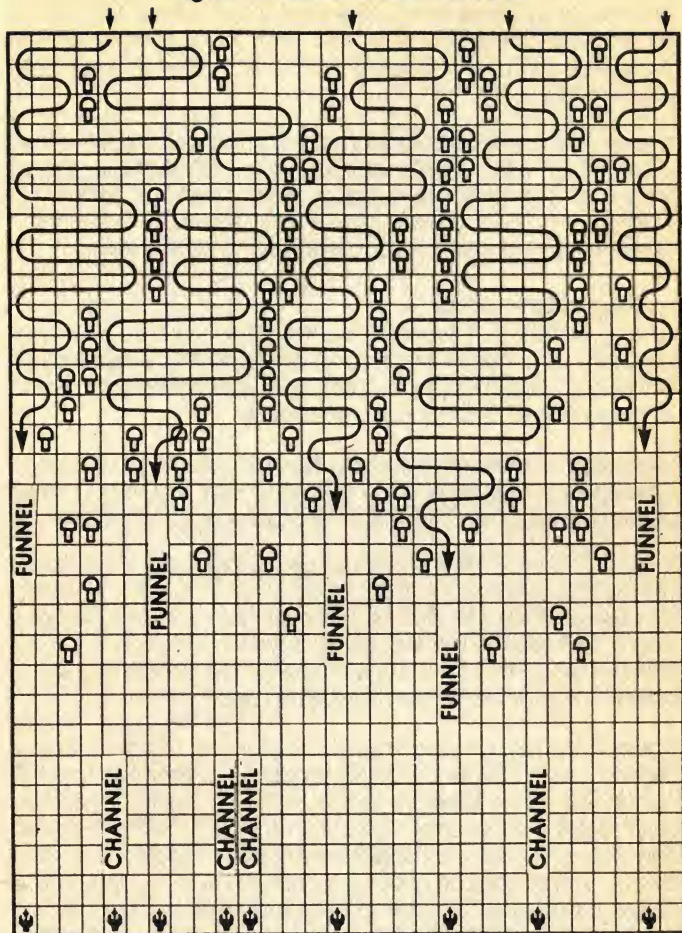
This is one of the situations in which repeat fire of your Shooter can be used. You can even let it fire more or less randomly. Random shots up an open column will often find a target, especially early on in the wave when there are still many targets.

As you decimate the enemy, however, and thin its ranks, the effectiveness of the channel kill depends more on precise firing. Since there are fewer targets, you must time your shot to arrive when a link or chain passes over your line of fire. You must now **lay off the trigger** so you can be ready with a shot at the precise instant required.

b. Funnel Shots

In addition to channels, you'll next want to look for Mushroom configurations that will tend to funnel links. Recall the Mushroom patterns that lead to zigzag attack patterns. At first glance, these patterns may seem undesirable because they speed the CENTIPEDE links down the field so quickly. A closer look reveals that if you take a position under the center of a funnel, you can turn this speedy invasion into a quick rout. Essentially, the funnel concentrates the links, sending them directly into your line of fire. The object is to dig in under the mouth of the funnel and polish off the links as they pass through. Notice that either side wall automatically is one wall of a funnel. This means that funnel openings are more likely to be found toward either side of the field than in its center, especially in the early part of the game before too many Mushrooms have been planted. If you line up your Shooter farther away from the center, however, you run the risk of exposing yourself to the Spider on the side you're favoring.

You should always be on the lookout for those configurations that can set up channel and funnel kills. Figure 16 shows some of the possibilities.

Fig. 16 CHANNELS AND FUNNELS

In CENTIPEDE, digging in means taking a position with your Shooter for no more than a few seconds at a time. The point is not that you shouldn't move your Shooter at all but that you should spend more time in fixed positions than in moving from place to place.

Knowing where to set up and where to move next will come more easily with experience. However, the relatively sloppy firing that channels and funnels permit must not make you overlook that the more essential key to CENTIPEDE mastery is in developing pinpoint accuracy with your shooting skills.

c. Single-Link Shots

As the CENTIPEDE advances into the infield, you are now confronted by the smaller chains and individual links. These targets are in much closer range, and you must now develop accurate shooting skills to destroy them effectively.

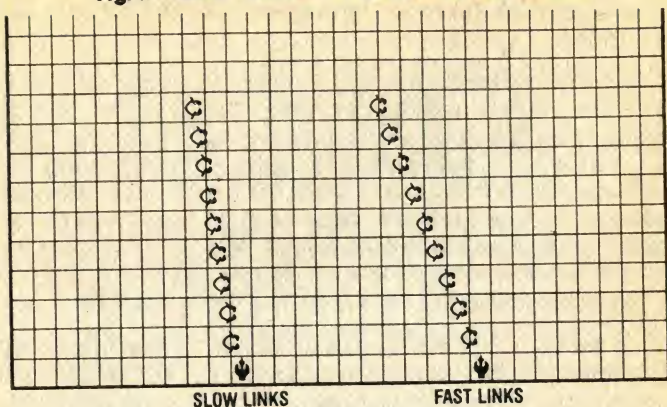
You can easily shoot a link when it is one or more levels above you. Again, the basic strategy is to keep your Shooter in a fixed position and let the CENTIPEDE link pass over your line of fire.

You must learn to hit the FIRE button **before** the link is actually above your Shooter and into the line of fire. Remember, the more levels the link is above you, the farther the shot will have to travel. It will take longer for your shot to reach the link, and your timing must be coordinated with how long it will take the link to travel across to the projected collision point.

Figure 17 illustrates the approximate distances a target link must be from your Shooter at various levels at the moment the FIRE button should be pressed to make the kill. Figure 17 has two parts: the first shows the distances for slow CENTIPEDE waves, the second for fast CENTIPEDE waves. Since the slow links take longer to move the same distance than the fast links, they will be closer to the line of fire at the correct moment to make the shot. You must fire at a slightly different point to hit a slow or fast link the same number of levels away from your Shooter.

Remember that your shot can destroy the link if it makes contact anywhere along its entire width. You do not have to hit the link at dead center.

The most valuable shot in the CENTIPEDE game is the one where

Fig. 17 SHOT TIMING—SLOW AND FAST LINKS

you set up for a link in the level immediately below the level in which it is traveling. In one sense, it can be the easiest of single-link shots because it is the one you take at closest range, which poses a problem for the beginner. If you go for the link on the second level, with the Shooter on the bottom level, you cannot afford to miss. In its very next advance, the link will trigger the Side Feed. On the other hand, if you venture out to meet the link higher up in the Shooter's Zone, you don't yet have the experience to judge how to place the Shooter exactly one level below the target link.

For now, it's more prudent to work on the timing of the more distant single-link shots. But begin with one in which a level separates the target from your Shooter. Try to master each shot at the next highest level before going on to the more distant link.

Once you're able to nail single links at farther distances, you'll be more effective at hitting the head link in a chain. The timing for a chain shot is no different than for the single link. The leading head link is the one you are setting up for the shot.

d. Chain Shots

In all but the very last attack wave, there is one CENTIPEDE chain of at least two links coming down at you. In early waves, the long chain dominates the wave. Up to now, you've learned to pick off

a few links in the chain or to go for its head. Now it's time to learn how to polish off many of the links in the chain with a single volley of shots.

If you shoot the leading head of a chain, a Mushroom will form in its place. The new head leading the remainder of the chain will immediately turn down into the same column in which you are firing up at it and then reverse direction. All the remaining links will pass directly through your line of fire. You can wipe out every second, third, or fourth link, depending on how far away the chain is from your Shooter. The farther away it is, the bigger the gap between shots and the fewer links you will hit because one or more will pass out of the line of fire in between shots.

If the first link you hit in a chain is not the head, then that link will also form a Mushroom, and the remainder of the chain behind it will pass down and reverse in line with your Shooter. This is really the same situation as when you fire up a channel. The channel shot is effective precisely because you are likely to make such multiple kills with it. However, this type of shot is more effective when you hit the leading head because it increases the chances of exposing more links to your volley of shots.

Try to bring your Shooter closer to the chain so as to narrow the shot gap and increase your rate of firing. The closer you are, the faster your Shooter fires. The more shots you get off, the more links of the chain you can destroy.

On the slow waves, it is possible to be effective at double the distance required in the faster waves. This is because the slower-moving links pass by your line of fire more slowly and there is more time for a shot to get there.

It is not necessary to hit the CENTIPEDE chain while it is traveling across the field in order to execute a chain shot. There is another type of chain shot that you can use. Assess the level the chain is traveling along (or will be on) and pick out a Mushroom that it will approach from the side. You then line your Shooter up under the column either to the right or left of where that Mushroom is planted. The CENTIPEDE chain will turn down directly into your line of fire. Remember that the column your Shooter is lined up in must have no Mushrooms to block your shot, and you must line up in the column on the side closest to the chain's approach.

There is a further rule of thumb that will help your beginner's game. Never shoot at a chain (i.e., two or more attached links) in the level immediately above your Shooter. The remaining part of the chain will turn down and crash right into your Shooter. The reason for this is that your direct hit causes the link to create a Mushroom, **not above your Shooter** but to the column immediately to the right (or left) of your Shooter. The next link turns down and destroys you before you can get off another shot.

For that matter, it's also very risky to shoot the first link of two or more separate links traveling on the same level when you're in the level below them. This is one time you do not want to stay in place. Depending on how close the links are, you again might not be able to get off a shot before the second link turns down and destroys you.

e. Clean Kills—the Poisoned Chain Shot

One of the major ways to improve your CENTIPEDE game is to focus your shots. You've already learned how to do this by shooting up an open column in channel and funnel shots. An even more powerful tactic is to concentrate your shots into a perfect succession of kills.

A clean kill, as we shall refer to it, is any shooting tactic that nets you two or more targets with a volley of successive shots.

The first clean kill that you should master occurs in the poison situation. Once a CENTIPEDE chain or link is poisoned, it tumbles directly down toward the bottom level. Whenever this happens, you will want to single out the chain from single links and make it your primary target.

The chain, once poisoned, will tumble down in two columns, its links moving in a zigzag in each column. Center your Shooter and move it in under the chain. Immediately hold down the FIRE button and keep it held down. You will discover that you can wipe out the entire chain with a volley of shots.

However, this will only work if your Shooter is close enough to the chain to allow your shots to fire fast enough to hit each link as it comes into range. If the shot gap is too long, however, your first shot unpoisons the chain and stops its direct descent. Before the second shot arrives, the chain will start turning out of the column and revert back to its normal attack pattern. You may pick off a

couple more of the links by staying put, but you will not get all of them.

In either event, the tactic works to your advantage. Either you wipe out the entire chain, or you unpoison it, taking out several links with your volleys of shots while slowing down the advance of those links left over from the chain.

You must learn to get a sense of how close you have to be to make this a clean kill. The range is greater in those attack waves in which the chain is traveling slow rather than fast. The slower descent allows a wider gap between shots to be effective at wiping out the entire chain. It's a good idea to first take on the slower poisoned chain to develop a feel for this distance.

Taking on the faster chain poses a greater challenge. In the first place, you can only make the multiple kill work well if your Shooter is about four levels away from the chain. If you were to stay in the bottom level, that puts it at the edge of your Shooter's Zone when you can go for it. This can be dangerously low because failure to execute the kill properly will unleash a hoard of links just itching to get to the bottom to trigger the Side Feed.

On the other hand, you can abandon the safety of the bottom level and bring your Shooter up to the top of its Zone. In this way, you can shoot the chain as it first emerges into the infield rather than into your Shooter's Zone at level 6. Failure to execute the complete clean kill now gives you much more of a chance to get any links that are left over.

The trouble here is that to venture out of the bottom level puts you at great risk. The Spider can now destroy you from below, and you're that much closer to the Fleas. Moreover, the poisoned individual links not part of the original chain will have passed you and be soon on their way back up in your Zone ready to get you from behind.

For the beginner, the bottom level is still the safest spot. Though it may at first feel as if you're being forced up against a wall, you'll soon discover that the wall is your friend in that it always covers your rear flank. You don't have to worry about getting it in the back, and you can always take stock of your enemy while he's out in front of you. Remember that your gun is only pointed straight ahead. There is never a way to shoot anything while it is behind your Shooter.

f. Threats to Your Timing

When you finally do get the hang of timing your shots, you become vulnerable to a very common mistake beginners make. You set up for a shot, time it out, and then fire. You miss because as a beginner you haven't really got it down pat. However, you do have a sense of firing rhythm that you've been following. So what happens is that you keep firing and keep missing.

You seem to have lost the rhythm. Your tempo seems off, and you fire too soon or too late. The very fact that you keep missing **consistently** suggests not so much that you're out of the groove but that you're in the **wrong** groove.

One of the main reasons this happens is that the wily designers of the game decided to throw in the slow waves, presumably to make it easier for the beginner. There is no doubt that initially it sure feels better to deal with a slow rather than a fast wave, but it requires you to learn two distinct timings to hit the same target. It may feel better in the short run, but in the long run it throws off your timing and your game.

The fast pace of the CENTIPEDE game often catches you up in perpetuating errors of timing. Find a moment in the furious pace of the game to step outside, pause, use your head to reset your timing, and get yourself back into the groove.

HERE COME THE FLEAS!

No Fleas will ever fall during the first wave of the attack cycle. However, Fleas may start falling in the second wave and in every other wave of the cycle thereafter.

The only way to prevent Fleas from attacking is to have at least five Mushrooms planted anywhere in the infield. The beginner should take advantage of this opportunity because he or she has yet to develop the dexterity and shooting skills required to go after a succession of Fleas. That's the reason you should get into the habit of only clearing the Shooter's Zone of Mushrooms and not the rest of the infield. Any Fleas that do fall will usually plant enough Mushrooms in levels 7-12 to cut off their own attack. You should not clear these Mushrooms, for if you do, it will only retrigger the Flea's attack. You can also add to this Mushroom patch by shooting CENTIPEDE links in levels 7-12.

If it were that easy to prevent Fleas from attacking, CENTIPEDE would not be the dynamic and challenging game it is. The Spider is out to foil your attempt to keep five Mushrooms in any portion of the infield. Every time it crosses the field, it gobbles up some of those Mushrooms, and once enough get eaten, down come the Fleas again.

At first, avoid shooting the Fleas. Instead, let them drop and quickly come in to wipe out the Mushrooms they leave, but only up to the top of the Shooter's Zone. In this way, you will develop facility moving the Shooter from column to column without putting yourself into the direct line of the Flea.

Each time, there is a slight delay before the next Flea drops, which gives you time to perform your clean-up operation. Be alert to the next entrance by watching the top of the screen.

The number of Mushrooms planted by the Flea can vary. In any event, remember to clear only those up to and including level 7 and leave any that were planted higher.

With practice, you become more adept at Trak-Ball control of your Shooter, especially in moving quickly to the column of your choice. That's when you'll be sorely tempted to get in under a Flea in time to take a shot. Don't. Shooting a Flea requires precision placement of your Shooter into the column. You can be far enough off center so that your shot misses the Flea, but the Flea still crashes into part of your Shooter.

In your haste to get to the column in time, you fire a mite too soon, sending a shot up an adjacent column. You arrive in the right column, unarmed and not to be rearmed until that stray shot finds a Mushroom somewhere up the screen. No shot will be at hand to kill the Flea.

Or the opposite happens. You hold off the FIRE button while you bring your Shooter in under the descending Flea. Take care to make sure your Shooter is in line with the Flea. Don't delay hitting the FIRE button. If you do, the Flea will crash into you. You might even get off a single shot, but since the Flea needs two to be wiped out, it will be to no avail.

Your best bet is just stay out of the Flea's way. Besides, the Fleas are their own worst enemy if you let them be. Left to their own

devices, they'll soon plant enough Mushrooms to stop their own attack.

PREVENTING THE SIDE FEED

All your energy and skill as a beginner is ultimately devoted to preventing the triggering of the Side Feed. Finishing off the CENTIPEDE and all its links must be put on the top of your list of priorities. This means that once the CENTIPEDE gets to the infield, you must focus in on shooting every last link.

No other target should distract you from this vital objective.

You must be able to assess which of the advancing links is the most dangerous. In general, the **leading link** is your worst potential enemy because it has the shortest distance to travel before getting to the bottom to trigger the Side Feed. The rule of thumb is to always go for the leading link.

Concentrate on the links but don't forget the Mushrooms in your Zone. Ideally, enough will have accumulated in the upper portion of the infield so that the Fleas will have stopped falling and you can take on the marauding links in a Mushroom-free battleground. If a Flea does fall due to lack of Mushrooms, it will often plant enough to stop any more from falling.

You have to decide whether those extra Mushrooms it may leave in your Shooter's Zone are going to pose danger. Are they in the center, blocking your movements, or off to one side? Do you have time to clear them out? If you clear them, will you only start the Fleas attacking and have yet more Mushrooms clogging up your Shooter's Zone?

You will learn to "live with" certain Mushrooms in your Zone but not others. You will learn to sense when wiping out that extra Mushroom or two will only retrigger the Flea attack.

POISONED LINKS

Dealing with an attack wave is usually easier if you're in a non-poison situation. This is always the case immediately after a loss of a life because all Mushrooms previously poisoned are cleared during the brief intermission when Mushroom credits are tallied.

Even without poisonings, the CENTIPEDE links will soon drop quickly. In fact, the more Mushrooms that have accumulated in the field, the faster the links will come. However, if you have been doing a good job of keeping levels 2 through 7 relatively free of Mushrooms, then once any link emerges from the thickly planted field, it will slow down its advance significantly, being much more likely to travel longer side-to-side distances.

Whenever any CENTIPEDE link encounters a Poisoned Mushroom, it is no longer subject to the previous rules governing its advance. It is free to tumble directly toward the bottom level, in effect ignoring any Mushroom in its path. However, it still maintains a narrow zigzag, cutting a swath about two columns wide on its way in for the kill.

As you might have guessed, this significantly alters your tactics. In the first place, the CENTIPEDE links are dropping almost as fast as the Fleas do, and you have to watch out that one doesn't hit you head-on. Unlike the Fleas, there may be several single links coming down on you at once. Escaping one may put you right in the path of another.

You might panic in this situation because you feel you must attack the links directly for fear of being overwhelmed. But notice something peculiar about a poisoned CENTIPEDE link after it hits bottom. It does not travel the full length of level 1! Rather, once it touches the bottom level, it turns into the next column and then rises immediately back up into level 2, where it resumes its normal side-to-side motion, following the usual rules of CENTIPEDE movement.

But then what? The CENTIPEDE link is not advancing but **retreating**. As with unpoisoned links, it is rising back up to the top of the Shooter's Zone before starting back down again. It is important to know that poisoned links **do not** initiate the dreaded Side Feed attack when they first touch bottom (as do unpoisoned links).

Once aware of these differences, it's possible to use certain tactics to your advantage. The first thing to remember is to get under the primary chain (if it has been poisoned) and try to demolish it with a clean kill. You are also in a relatively safe spot under the chain because you will not be anywhere near the

scattered single poisoned links that are also tumbling (some would add hurtling) down at you. Those single links are exceedingly dangerous not only because of their blazing speed but also because they zigzag down a two-column width, giving them a wider strike Zone across which they may crash into your Shooter.

Going for the chain gives you a type of umbrella protection. You could also pick out one link and by taking it out, be relatively safe. If neither of these options is viable, you're best bet is to just get out of the way. Stay on the bottom level and don't panic. Just pick out a spot where no single link is heading and stay put until all the links hit bottom and rise up to level 2. Remember that poisoned links **never travel along the bottom level** but only use it for a turning point.

Once the poisoned links make their turnabout up into level 2, you're free to start shooting at them. Remember that they must travel up to level 6 before they start back down again. This gives you much more time to shoot them than you were led to expect from their sudden assault.

Another way of thinking about these events is to see that touching the bottom level is the antidote for any poisoned chain or link. Having touched bottom and risen to the second level, it now returns to the same retreat-loop cycle as any unpoisoned chain or link would. In fact, unpoisoned links are in a way more dangerous because they travel **along** the bottom level before rising up, forcing your Shooter out of its most secure stronghold, as well as triggering the Side Feed.

You may conclude from all this that the best thing to do is to go for that 1,000-point Scorpion and prevent it from poisoning any Mushrooms in the first place. As a rule, you **should not** go for Scorpions. Don't let those points tempt you. You have not yet developed the skill to kill it with a single, well-timed shot. You will only waste a lot of valuable time and, worse, be distracted from potential danger.

The fact is that poisoned links are a lot less dangerous than they might seem at first glance. Once you learn how to handle them, they even can be turned to your advantage. Remember, also, that the game is always trying to divert or distract you. Never waste any time trying to shoot out a Poisoned Mushroom; it

rarely, if ever, makes a difference in the overall attack. The time lost doing so will never pay off in any strategic advantage.

SPIDER KILLS

You are limited to the number of points you can score if you only go for the CENTIPEDE targets. Since there are 12 in any wave, you can only score about 1,200 points in a wave. You'd have to get through at least ten waves to earn that extra bonus Shooter. You might pick up a few extra points from extra heads fed in during a Side Feed, even some loose change from all the Mushrooms you wipe out. But it's the Spider that can really raise your score.

The safest place to be **after** the Spider appears is on the side that it already has passed, where it can no longer attack you. The safest place to be **before** the Spider appears is in the bottom level in the center of the field (i.e., column 15 or 16). This maximizes the distance between you and the Spider, giving you an extra moment to set up your shot at it.

One of the other advantages of this center position is that the Spider rarely, if ever, angles in directly to the center. Rather, it will usually angle in partway, then pick a column to bounce in. If it does angle in straight to the bottom level, it will wind up hitting bottom at least a few columns away from the center.

In either of these cases, the Spider will rise after hitting bottom. You should learn to shoot the Spider on the rise, just after it hits bottom. It will either move straight up in the column or else angle up and away at 45°. If it moves straight up, you have enough time to come in under it and take your shot. If it angles away, you hold your position and wait for it to pass over you before taking your shot.

The drawback to the tactic of shooting the Spider on the rise is that it usually earns you only 300 or 600 points. This is a perfectly respectable achievement for a beginner. In CENTIPEDE, greed will often give you your just deserts. For now, play it safe. You'll need to develop a much better feel for the Spider's rhythms before you can risk going for more points.

You are again safest by staying at the bottom level. This maximizes the distance between you and the Spider if it should sud-

denly stop and dart back down at you. Remember, to kill the Spider, you have to put yourself underneath it, exactly where it's always free to attack you. So be careful.

Remember to keep your finger off the FIRE button until you have a bead on the Spider. This way, you'll always have the shot ready when you need it.

REGULATING FATIGUE

Beginners usually get to play 1 or 2 minutes. This is hardly enough time to warm up, let alone get into the special rhythm the game demands. As a rule, then, beginners should often play without an opponent. Your early game will profit the most from continued, uninterrupted play.

BEGINNER'S GAME PLAN SUMMARY

What To Do

- Shoot at your primary target—the CENTIPEDE.
- Keep the Shooter's Zone cleared.
- Stay out of the Spider's way. Get on the other side of it.
- Lay off the FIRE button; always have a shot when you need it.
- Stay out of the Flea's way. Clear Mushrooms in its wake.
- Stay low, at the bottom level.
- Shoot from fixed position.
- Shoot Spiders only in passing.
- Tend to keep your Shooter in one place.
- Focus your shots with chain kills.

What Not To Do

- Take risks by exposing yourself to unnecessary danger.
- Go for Scorpions or other distracting targets.
- Leave less than five Mushrooms in the Infield. (It brings on the Fleas.)

- Push up on Trak-Ball into target as you fire at it.
- Shoot while Shooter is moving.
- Move the Shooter too much.

THE INTERMEDIATE PLAYER'S GAME PLAN

GAME EVENTS REVIEW

(20,000-79,999)

- **Nine Mushrooms needed in the Infield to prevent Flea's attack.**
- **Fleas drop fast; if shot only once, very fast. At 60,000 points, Fleas always drop very fast.**
- **Slow and fast CENTIPEDE attack waves alternate up to 40,000 points. After 40,000, only fast waves appear.**
- **Spider moves fast in wide-open window (level 1 to level 12).**
- **About three-fourths of Scorpion crossings are fast; the other one-fourth are slow.**

The beginner's strategy centers on attacking the CENTIPEDE. A beginner averages a few thousand points for each attack wave encountered and will get through no more than half a dozen or so attack waves, including the repeating slow waves. At most, the beginner is confronted by a few single links at the start of any wave.

Moving up into the intermediate ranks exposes you now to the middle and late attack waves. The game moves into high gear once the primary chain shortens to less than half of the total of 12 links that make up the wave. Now the brunt of the attack comes from the scattered single links. As you take on each new wave, your task gets tougher and tougher, until, finally, you're up against 12 single, marauding links. There's not a chain to be had, no bunching up anywhere to make things easier for you.

There is no greater single moment, no greater thrill in your CENTIPEDE game than you will get the first time you demolish that

last and toughest attack wave. You've turned over the entire attack-wave cycle. The next wave you see will consist of one beautifully intact chain with not a single scattered link in sight.

This turnover is a milestone because you have gone from the part of the game that is toughest to handle to one that, by comparison, is a piece of cake. You are now out to rack up points, the well-deserved spoils of a hard-fought victory. These points are crucial to arming yourself with the extra guns needed to fight your way through to the end of the new cycle. It's time to get those Fleas.

CLEAR THE INFIELD

Clearing the Mushrooms from your Shooter's Zone is one of your constant tasks. You must now learn to combine the shooting of a link in your Shooter's Zone with the immediate clearing of the Mushroom it leaves. The Mushroom does not materialize in the column right above your Shooter (as you might expect) but actually one column to either side. It's as though the momentum of the link carries it one column farther before the Mushroom replaces it.

Therefore, you must edge the Shooter over one way or the other to wipe out the Mushroom. The slightest push on the Trak-Ball will do the job, either to the left or right, depending on the direction in which the CENTIPEDE link was traveling. You line up your shot, time it, press the trigger with your left hand, and then flick the Shooter over instantly to where the Mushroom will form. Learn to coordinate all this into a smooth, continuous action. By moving the Trak-Ball at just the right instant, you won't have to remove your finger from the trigger for fear of sending a stray shot up the screen. The first shot takes out the link, the next four take out the Mushroom. A burst of five shots makes your volley complete. The trick here is to time the flick just right.

Links can also be shot at several levels away. In this event, you still make the same flick, but to speed the next four shots needed to take out the Mushrooms, you must also learn to push the Shooter up to the Mushroom while still shooting, remembering to come back to the bottom when the task is done. Don't stay any longer than needed; four shots will do it. Remove your finger from the FIRE button instantly. No need to send a stray shot past the cleared Mushroom. Practice will help you to get

the required timing. You'll soon keep that trigger pressed for the precise duration and not an instant longer.

As you develop a feeling for your various adversaries, you can begin to venture out of the bottom level to get as close to a link as possible when shooting it. As you do so, you will find it to your advantage to shoot out Mushrooms in levels 8–12 whenever you have the chance. The more open you can keep the entire infield, the more room you will have to deal with single links during the more difficult attack waves at the end of the cycle.

The trade-off here is that you will now inevitably bring down the Fleas—there are too few Mushrooms to halt their attack. As an intermediate player, however, you can turn this in your favor.

HERE COME THE FLEAS!

Fast and accurate shooting of the Fleas is the best way for the intermediate player to rack up points. The Spider is still your nemesis, best to be avoided. For one thing, its rhythms are more elusive, making it both a tougher target as well as harder to avoid. For another, by leaving the Spider alone, he'll be collaborating in your efforts to clear out all the Mushrooms and keep the Fleas coming.

Furthermore, Spiders come out no more than every 5 or 6 seconds. Even if you can shoot it every time, you'd average 600 points at best. In the same 5 or 6 seconds of a Flea attack, you can easily rack up over a thousand. The secret here is that the Fleas keep coming out as fast as you pick them off—bam, bam, bam. And they'll keep coming as long as you don't miss.

If you keep the Infield clear of Mushrooms, you also can shoot the Flea a little higher up on the screen than if you only keep your Shooter's Zone clear. This also significantly reduces the risk of the Flea's planting Mushrooms in the infield before it gets destroyed. But do not fire randomly up the column. You must learn to time your shot to the precise point the Flea drops past the last Mushroom in the column.

The skill most important for shooting Fleas is making fast and accurate placement of the Shooter into the column in which the Flea is descending. This requires very good control of the Trak-Ball. For a Flea coming down only a few columns over from

the last Flea shot, fine-tuned movements of the Trak-Ball are necessary to line up the Shooter in the right column. For Fleas half the screen's width away or more, you must learn to spin the Trak-Ball and let it roll freely for a moment so that the Shooter can travel all the way over on a single spin. Only after the Shooter is near the column required do you stop the ball and use it to fine tune the placement of the Shooter into the exact column needed.

At first, you won't be able to shoot a succession of Fleas because you won't have learned yet how to coordinate these movements. Some of the Fleas that get by you will plant Mushrooms in the infield. Your first priority is to come in under these Mushrooms and wipe them out, from the one at the lowest level all the way up to level 12 in any one column in which Mushrooms have been planted. You do this not only to keep the infield clear but also to make sure that there are **not** enough Mushrooms to prevent a new attack. As you improve your shooting skills, you actually want the Fleas to keep coming so you can really rack up extra points.

The Flea is the optimal target for intermediate-level play because of one important fact: the Flea's attack is relatively slow until you reach 60,000 points. Since you usually turn over the attack-wave cycle before that score is reached, you spend a good deal of that first cycle going after these slow and juicy targets. They may not seem so juicy at first, but once you can swing that Shooter to exactly where you want it, these slower Fleas become pretty easy game.

They can become so easy that it's possible to rack up **too many** points. You should always make sure to keep your first-wave-cycle score **below** 60,000 points. The last thing you want to bring down on yourself, especially in the hardest two or three waves at the end of the cycle, are the very fast Fleas.

At 60,000 points, they stop their dallying. From now on, they'll zoom down with such speed that merely getting under them in time is tough enough. Even if you do, you don't have much time to get off a shot before they crush you. After 60,000 points, the best advice is to steer clear of the speedy little demons.

You'll have to clean up the Mushrooms they leave, but only those in your Shooter's Zone. Their speedy attack has turned

them into potent enough foes that you must now make sure they will plant enough Mushrooms in the rest of the infield to cut off their own attack. This now becomes the basis for a new game plan, one that you'll learn more about later in the section for advanced players.

SECRETS OF THE FIRE BUTTON

You must continue to work on developing pinpoint action with your firepower.

The most common mistake is the tendency to keep your finger on the FIRE button longer than is necessary. Sure, rapid fire is a great feeling, but if you lay there longer than necessary, it'll send a stray shot up the screen and leave you helpless in the instant you need a shot the most. You must develop the sense of **punching** the FIRE button, and only for as long as needed to do the job. This is not natural, so you must develop the habit to **lift off, lift off, lift off**.

It's not a good idea to use rapid fire **unless** you have one of those situations in which you can wipe out the CENTIPEDE chain or when you want to get rid of Mushrooms.

TAKING ON THE CENTIPEDE

1. The Intermediate's Perspective

That your primary target in the intermediate game is no longer the CENTIPEDE does not mean that you have reached a point at which you can ignore the CENTIPEDE attack wave. You can never ignore it. However, by polishing your shooting skills and adopting more efficient shooting tactics, you will now learn how to put the CENTIPEDE into its place—more or less.

For one thing, you need to develop a repertoire of clean-kill shots. You will no longer rely on channel shots up the screen, shots that will likely split off the chain into smaller chains. Your new goal will be to keep the chain **intact** and look for the chance to do in the whole chain at once.

But you will now be venturing deep into the attack-wave cycle, so deep that the fat, meaty chain becomes nothing but a skimpy two or three links long. Time formerly saved by clean kills

of the longer chains must be made up for by alert and efficient shooting of the swarm of single links.

2. Shooting Skills

a. The Sure-Fire Killer Shot

You should now be ready to tackle your most important single-link shot, the one in which a link crosses your Shooter in the level immediately above it. This is ultimately your easiest shot to execute, the one you make at closest range. Getting the timing down for this shot will be a lot easier than for more distant ones. The perfect pinpoint timing will come quickly.

The timing is only half the battle in mastering this sure-fire killer shot. The other half has to do with learning how to place your Shooter so that it is always a single level below the link you're trying to take out. This is not as easy as it might seem. For one thing, you keep your Shooter's Zone free of Mushrooms, so there are no Mushrooms to use to gauge exactly what level your Shooter is at. Without guidelines, you could accidentally have the Shooter nosed up too far into the link's path—and crash, you're dead!

Instead of trying to line up exactly in the right level, do it at a distance where you can be sure of a margin of safety. You should be already fairly good at hitting a link when there's a level between it and your Shooter. The object, then, is to gradually narrow that one-level gap, inching up a bit at a time and making the slight adjustments in timing based on the distance you are from the link when you make the shot. As you get closer and closer and develop confidence in judging the safety margin, you will soon be able to place your Shooter precisely so that you never risk a collision.

The easiest way to coordinate the movement of your Shooter and a moving target is to move it into a fixed position **ahead** of the target. This gives you a split second to time your shot from a stationary position. You may be one of those rare creatures who can shoot on the run with pinpoint accuracy, but most of us wind up either missing a shot taken on the run or, even worse, crashing the Shooter right into the target.

At first, you will have a tendency to move into a fixed position

much farther ahead of the target than is really necessary. You lose precious time for every instant of excess waiting. The idea is to let the target come to you but to set up so close to it and shoot so fast that one would hardly detect that you've actually come to a stop before taking your shot. You want to give the illusion that you're shooting on the run when, in fact, you're not.

b. Clean Kills

1. Chain Shots

We've learned that shooting at a chain traveling across the field can net you a couple of more links. This may be okay for the beginner but not for the intermediate player. You can no longer afford to allow the emerging chain the luxury of being divided into any smaller chains. You will have to learn to polish off the chain in one swift and complete clean kill.

Recall that the most effective way to shoot a chain is after its leading head link has made a turn. Put another way, you shoot at the leading head as it turns down into the column in which your Shooter is lined up.

Let's take a closer look at what happens. If a head is shot as it turns down, the link immediately following the head link you just shot becomes the new head and turns down, also. Depending on how far away your Shooter is from the CENTIPEDE when it starts to turn down, you will be able to shoot every fourth, third, or second link in the chain. But if you get your Shooter about four levels away from the CENTIPEDE, you can wipe out each head as it forms, resulting in a clean kill.

Distance is the critical factor here because the time between the first shot making contact with the leading head and the next shot traveling up the screen may allow the next link time to complete its turn into the next level and move out of your Shooter's line of sight. It's also possible that the Mushroom just created to replace the head link can even absorb a shot or two, again letting links slip by during the shot gap.

You also cannot make a clean kill if the chain gets too close. If it's too close, you'll again skip links in the chain because your gun is firing too fast. What happens is that the next shot comes out before the next link has moved into the line of fire. That missed shot goes astray, and in the time it takes to reach a Mushroom

farther up the column (or, even worse, go all the way to the top of the Mushroom field), a good many links of the chain will have slipped by. These facts suggest that the most efficient tactic is to always wait for the chain to get into exact range for a clean kill.

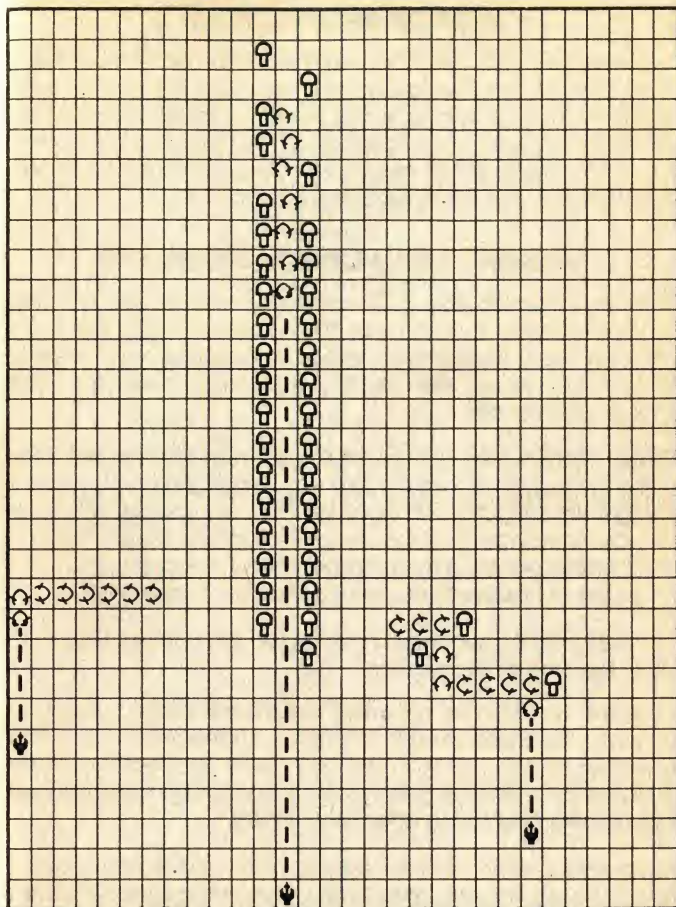
The clean kill can be used in any situation in which a Mushroom causes the chain to turn down. You can see that a clean kill is also possible whenever a chain hits either side wall. The side wall functions as a Mushroom that always causes the CENTIPEDE to turn down into the next level in either column 1 or 30. By lining up your Shooter there, you are in a perfect position to execute the kill after a CENTIPEDE chain enters into the turn.

An advantage of a Mushroom-free infield is that once a long-linked CENTIPEDE gets to the infield, you'll have several opportunities to line up next to one or the other side wall to go for a clean chain kill. This is also one of the reasons you can afford to ignore the longer CENTIPEDE for much of its journey down through the outfield. (See Fig. 18 for clean-kill illustrations.)

2. Channel Zigzag Shots

Your job is to keep the Fleas coming. It doesn't take long before they fill many columns with Mushrooms, at least throughout the outfield. If two of these columns are either adjacent to one another or separated by one other column, the chain will tumble down directly in a zigzag fashion (just as it would if it were poisoned). Moreover, if there is a channel for you to fire up through, you can take out the entire chain no matter how far away it is. You are no longer under the restriction of being four columns away to make a clean kill. The chain is fed down the narrow zigzag because of the presence of the Mushrooms on each side of the channel. It will continue to feed down over the Mushrooms left after you shoot each leading link of the chain.

The most important advantage of this type of clean-kill shot is that it can be made earlier when the chain is farther away. In fact, a special version of this type of channel is called a tunnel, and you'll be using it regularly to set up a key shot when you get into advanced-level play.

Fig. 18 CLEAN KILL SHOTS

SIDEWALL

CHANNEL
ZIGZAG

TURN DOWN

GETTING THROUGH THE FIRST ATTACK-WAVE CYCLE

The attack-wave cycle structures the game. Each new wave is more difficult than the last, scaling your task in discrete steps or stages. This culminates in the twelfth and last wave, when you're faced with your toughest challenge. You can never progress to higher skill levels until you can get through each and every wave in the cycle, including the last one.

Phase 1: Long Chains Dominate

The long-chain waves contain chains from the longest of 12 links to the shortest one of four links. The number of single links in the attack, when added to the number in the chain, always totals 12. In the first cycle only, slow and fast waves repeat with the chain of the same length.

These attack waves are crucial to your later success. Because of the longer chains, you can use your repertoire of chain shots, doing them in quickly with clean kills. This buys you plenty of time to tackle the single links. You always look for the leading link and kill it before taking out more distant ones. The leading link is also an easier kill because you shoot it at closer range.

At the start of the wave, you can usually ignore the CENTIPEDE, using the time to shoot Fleas.

If there is a break in the action either because a Flea has gotten by you or because enough Mushrooms have been planted to stop their attack, you may use this time to go directly after the advancing CENTIPEDE and its links. At a certain stage, they will take priority over going after Flea targets.

This point is reached when the first link in any wave enters the In-field. Now you might purposely let a Flea or two go by. You'll not even wipe out the Mushrooms it leaves, hoping they might cut off the attack. In general, try to let those Fleas go by that are dropping near the side walls rather than the center. Try to keep the center open and clear of Mushrooms at all times so you can focus the attack on the links when they come into range.

You can use the slow attack waves to great tactical advantage. Use the time to wipe out as many of the Mushrooms in the

upper levels of the infield as you can. Don't add to your task by shooting the CENTIPEDE or its links in that Zone. You can shoot up to all but one link while the CENTIPEDE is still in the outfield, leaving the rest for close-range shots within the Shooter's Zone.

Always leave one link to the very last moment, to the point in your Zone at which you are confident that your shooting skill can hit it when the time comes. You do this whenever possible in both slow and fast waves. The extra few seconds can buy you more time to wipe out more Mushrooms. You want to focus especially on those Mushrooms in your Shooter's Zone. They are the most dangerous, especially if they were to be left at the start of a new wave. It's always best to go into a new wave with a clean slate.

You're constantly assessing how much time you can take away from the primary task of killing off every link in the wave to give to shooting Fleas and wiping out Mushrooms. If you have the wave under control, you go for Fleas or Mushrooms. If not, you don't. The highest priority at any time is to do whatever is necessary to prevent a link from getting through to trigger the deadly Side Feed.

You have a new headache once you get to the fourth wave in the cycle. From now on, Scorpions will cross the screen at random moments during a wave and poison the Mushrooms in its path. These Scorpions will only travel at their slow rate up to 20,000 points. They will also sometimes appear lower down in the outfield. In any event, try to hit the Scorpion if you wish, but only when it's low down and traveling slowly.

These opportunities will be limited, so as a rule, it's probably wise to ignore them, anyway. The time you take out to line up the shot, added to the interruption of your rhythm, does not make it worth the 1,000 points. Shooting the Scorpion to prevent poisonings is also a lame rationale because you're going to have to deal with Poisoned Mushrooms sooner or later. Shooting a Scorpion or two doesn't make any real difference because even if you can prevent a poisoning in the lower part of the outfield, you'll soon have another patch poisoned higher up.

There is only one way to prevent the Scorpion from appearing. If you keep shooting Fleas and **not** missing, they come out one after another. The Scorpion cannot make its appearance as

long as a Flea is on the screen. The first Flea that gets by you will give the Scorpion a chance to make its crossing.

You may also think that it's to your advantage to shoot out a Poisoned Mushroom. Don't. It's wasted effort and makes poor use of your precious time. One or two Poisoned Mushrooms more or less will not affect the overall impact of the wave.

Phase 2: Single Links Dominate

The waves containing the chains of four or less links are now dominated by single links. Furthermore, since you will be scoring over 40,000 points by now, there will be no more slow waves.

If you have used the time in phase 1 to best advantage, especially in scoring lots of points during the slow waves, you will enter this new phase armed with at least a few bonus Shooters. Every extra gun is an insurance policy and provides a further margin of survival for the inevitable errors you will make in these harder waves. Use phase 1 to build up as many shooters as you can.

Once into these attack waves, you'll have to shift your tactics. The Fleas are no longer your primary target objective. You must focus in on the CENTIPEDE, on each of the scattered single links from the very start of the wave. Your eyes should be riveted to the top of the screen and immediately assess exactly where the single links emerge.

Your tactics will vary depending whether or not you're in a poison situation. If you are not, you must take the offensive, moving your Shooter high up into its Zone to first take out the small chain, and then quickly assess where to move next. You'll be on the lookout for where the leading links are breaking through to the infield or, even worse, to the Shooter's Zone.

Here is where the perfection of the sure-fire killer shot does you its greatest service. You must venture out to the links and get them the moment they come into range in level 7 or higher while you're at the top of your Shooter's Zone. You pick one or two to take out and quickly retreat another level or two. Each time you get to a lower level, you reassess where the leading link is and take out another one or two. By the time you've returned to the bottom, you have only one or two links left to deal with.

Sometimes you catch a link out of the corner of your eye that's gotten past you. You must always drop down to get that link before doing anything else. You may still have time to move the Shooter back up in such cases, or you may feel you're better off staying as low as you've gotten.

You will begin to recognize how Mushrooms left at various levels of the infield will affect the advance of particular links. As you become more familiar with certain configurations, you'll be able to identify when and where you can abandon the rule of going for the leading link. If you can polish off a cluster of links, for example, because you're right there, it won't pay to go elsewhere for the leading link until after that job is done.

Basically, with experience, you develop a sixth sense about when you can afford to abandon the rule of thumb. Until you do, cut off that leading link at all costs.

Short of perfect shooting of the Fleas, you'll inevitably be up against Poisoned Mushrooms, and just as inevitably, up against a wave of poisoned links. The higher up the poisoning occurs, the faster will the scattered links swoop down at you, and the more dangerous it will be.

You should pay attention to where you're highest poisoned patch is in helping you anticipate the adjustments in your tactics such positioning calls for. The lower down the patch is, the more time you have to try and take out the poisoned chain. Move the Shooter quickly up to the top of its Zone, get a bead on the chain, go for the clean kill, and then make a fast retreat to the bottom level, ideally into one of the corners. You will, of course, be on the lookout for the Spider at all times.

If the poisoned patch is in the top five levels (i.e., 26-30), you must give up going for the chain first and get yourself to one or the other sides of the field as soon as possible. If you have time, try to shoot out a couple of links on the way over. The primary task, however, is to get to the bottom corner and shoot out the one or two links that may or may not be dropping in the end column or two. Don't fire wildly in passing over or you may not have the shot you need for those when you need it.

Once you've taken out those one or two links above you, stay put. You're safe where you are. Don't venture out of the bottom

corner. Instead, wait for the other poisoned links and chain to rise up to level 2. They will inevitably come over right above you and make for easy shots. You can shoot half a dozen or more, making sure to wipe out the Mushrooms they leave in their wake as you do it. Once you've cut down half or more of the links, you move back to the center and begin to polish off the rest. By this time, the remaining links have gone back up to level 6. You're at dead center, ready to take them on as they come back down. Again, the most efficient tactic is to conserve time and reduce risk by waiting for the links to come to you. You'll be on the lookout for clusters, for links traveling together one level above the other or crossing the same or nearby columns in the opposite direction. Try to shoot these links in the same shot volley, taking advantage of the rapid fire such close-in targets permit. Clean up all Mushrooms after your kills, keeping the Shooter's Zone spotless, as always.

THE SIDE FEED ATTACK (STAGE 1)

Every tactic in your game should be devoted to avoiding the triggering of the deadly Side Feed attack. Avoid it at all costs, but neither the beginner nor intermediate-level player will likely avoid it for long.

This is the guts of the CENTIPEDE game, the place where your skill is put to the ultimate test. A good intermediate player might be able to stave off a Side Feed attack for several attack waves. Eventually, however, every CENTIPEDE player, no matter what proficiency, is going to have to come up against the Side Feed attack and deal with it head-on.

Okay. What exactly are you up against? There are actually two stages to the attack, the first of which we'll call hard and the next, very hard. Actually, within each stage, the level of difficulty increases as well. That's because from the instant that first unpoisoned link hits bottom, there is a clock that starts ticking. The time bomb goes off 3 seconds later and feeds in the first link. Again the countdown, but this time a bit shorter, so the next link comes out a bit sooner. The clock keeps shortening the interval until about a dozen heads have been fed in, and the delay has been shortened to about 1-3/8 seconds.

These dozen heads represent your grace period. The more time you take to finish them off, the more of your grace period is used

up. Once a Side Feed has been triggered, you do everything in your power to cut it off. The only way to stop the relentless critters is to polish off every link currently on the screen before any other link shows up.

Let's say that the first time you triggered the Side Feed you were able to end it after five links were fed in. The next time you triggered it, you'd have only seven links left in your grace period. Instead, if each time you triggered the Side Feed, you were skilled enough to cut it off after only one or two links were fed in, you'd have that many more chances to trigger it in the first stage. The time between links would remain relatively long. A couple of seconds doesn't sound like much, but it's an eternity next to the one-a-second or faster rate you'll encounter in the second stage of the Side Feed attack.

Tactically, a decision of whether or not to take on the Side Feed should be made based on your chances of fending it off. If, for example, a link gets through to trigger it while the majority of the original wave is still at hand, you'll probably be better off sacrificing a life (if, of course, it's not your last). The reason is that once the Side Feed starts, you have little time to clean out Mushrooms after kills. You're often left with lots of Mushrooms clogging up your Shooter's Zone when you finally are destroyed. If it were a later wave, you'd hardly want to start off the top of a difficult wave with such a mess. This tactic assumes that you in no way had a chance to terminate the Side Feed had you stayed around for a fight to the death.

If you decide to take on the attack, it'll be because you have no more than one or two other links to contend with. You must work very quickly, then, using the sure-fire killer shot to take them out at the closest possible range. You should save the Side Feed link for last; if the other links have gotten to the sixth level or below, go for them first. The minute you succeed in taking out the last link, take no rest or pause but wipe out any stray Mushrooms in your Zone in preparation for the new wave that will have already been launched.

Your grace period is also diminished by your score. For each 10,000 points, the delay between links is brought down a notch. Even if you didn't trigger the Side Feed attack until, let's say, after you scored 50,000 points, you'd have lost five notches—the equivalent of five links. Triggering the Side Feed for

the first time would start off closer to 2 seconds between links and get you down to 1-3/8 seconds with only about seven links more.

Once the Side Feed gets down to the delay of 1-3/8 seconds, the clock ticks down in much smaller notches. In fact, the heads feed in for some time before they speed up, and when they do, it's almost imperceptible to all but advanced or expert players. A link every 1-3/8 seconds is fast enough to vanquish the most valiant of intermediates.

REGULATING FATIGUE

CENTIPEDE is an intensely demanding game. To play it well demands peak performance levels. Once you're playing at the intermediate level, the pace is fast and furious, the action constant. It's a completely exhausting, yet exhilarating, experience.

When the game is over, most people rush right back in with another quarter. It is better to take a break between games; the game demands it. You can get wasted after even a single bout. Your mind and muscles are longing for a rest. Heed the longing. Jumping right back into another game will more often than not result in a lower score.

Watch someone else play. Take a walk around the arcades. Clear your mind out. Once you're feeling fresh, it's time to go at it again.

INTERMEDIATE GAME PLAN SUMMARY

What To Do

- Shoot Fleas for points.
- Keep entire infield clear enough to keep Fleas coming.
- Develop single-shot control with FIRE button.
- Use sure-fire killer shots on single links.
- Use clean-kill shots on the chain.
- Go for leading links first.
- Position Shooter in bottom corner for Poisoned Links.
- Cut off Side Feed as soon as possible.

- Shoot Spiders when safe to do so.
- Rest between games.
- Develop shot timing to differentiate between slow and fast waves.

What Not To Do

- Let Spider or Scorpions distract you.
- Let Fleas continue falling in last three or four waves.
- Lay on FIRE button any longer than necessary.
- Score 60,000 points before turning over first cycle.
- Waste time in setting up shots.
- Shoot last link in wave too soon.
- Shoot Poisoned Mushrooms.

THE ADVANCED PLAYER'S GAME PLAN

GAME EVENTS REVIEW (80,000-299,999)

- Nine Mushrooms in infield prevent Flea attack up to 120,000 points; fifteen up to 140,000; sixteen to 160,000; seventeen to 180,000. One more is added to total needed for each 20,000 points scored.
- Fleas drop very fast only.
- Fast CENTIPEDE attack waves only.
- Fast Spiders only. Window narrows to level 11 at 80,000 points; to level 10 at 100,000; to level 9 at 120,000; to level 8 at 140,000; and, finally, to level 7 at 160,000 points.
- About three-fourths of Scorpion crossings are fast; the other one-fourth are slow.

The first wall in CENTIPEDE—getting your first bonus Shooter at 12,000 points—is broken through pretty soon after you take up the game. Getting through the first attack-wave cycle is not merely another wall; it's more like a mountain. The last wave in the cycle is the real killer, a dozen heads bobbing down, coming at you from everywhere.

You would think that once you were able to get through that first cycle, you should be good enough to get through any cycle. But this does not jibe with reality. Like most full-fledged intermediates, you will consistently get through the first attack-wave cycle but run up against a brick wall getting through the next.

There's a very good reason that this happens. The first attack-wave cycle is different from every cycle that follows it. The crux of this difference is the presence of the slow waves. Slow waves

are a cinch for the average player and ones in which you rack up plenty of extra points for those extra Shooters and buy some time to work on clearing out the infield. When you finally come up against the last one or two attacks, the slow waves have given you an insurance policy.

There is no insurance in the second attack-wave cycle, no slow waves to fall back on. As so often happens in CENTIPEDE, you must shift your tactics to take into account a change in the game's structure and dynamics. The absence of slow waves is but one of several events that have changed. The next most important is that the Fleas begin to fall at blinding speed and become much harder to shoot as well as to avoid. This happens, not coincidentally, at 60,000 points, shortly after you have turned the attack wave over once. In effect, this forces you to face the new cycle with two crucial handicaps: the **absence** of slow waves and the **presence** of fast Fleas.

But all is not lost. There are other changes you can use to advantage, not the least of which is your old nemesis, the Spider. You've lived with your old foe long enough to know its ways. And you're good enough now with your shooting skills, especially with **your** timing, that you can handle it. You're no longer running scared, staying out of its way. It's time to take it on, in a head-on, one-on-one fair fight. The advanced player takes an entirely new approach to the Spider into the second attack-wave cycle and every cycle thereafter. You're ready to switch your basic strategy from defensive to offensive.

The purpose of this section is to help the upstart who's got the hang of turning over the first-wave cycle to get it down pat for all the others. You know the game inside and out by now, so it'll be a matter of taking in some of its finer points, at the same time sharpening the skills you've already acquired.

THE VERY FAST FLEAS

The Flea, having sped up at 60,000 points, is no longer an easy target. You have barely enough time to react to where it's coming out, let alone to get underneath it and shoot it. When you try, there's no room for error. The slightest miscalculation, the minutest lapse in timing your shot, brings the inevitable collision and certain death. The Flea cuts his deadly swath a column wide, but you need not be centered in that column to be its vic-

tim. If any part of the Flea's body catches the edge of the Shooter, you're a goner.

What had been your primary target during most of the first attack wave becomes a dangerous and potent enemy—dangerous because of the constant threat of collision, potent because of the speed at which it can plant Mushrooms. The more Fleas that fall, the faster the Mushrooms get planted. In a flash, any part of the infield can be covered by them, undermining all your best efforts to clear them out. It's amazing how quickly a succession of three or four fast Fleas can mess up the infield, including your Shooter's Zone, where freedom of movement is so crucial to your survival. Worse, because they are doing their dirty work so much faster, your clean-up operation is both hindered and hampered. This only increases the likelihood that you'll be forced to leave stray Mushrooms deep inside your Shooter's Zone where they thereby threaten to hurtle that leading CENTIPEDE link that much faster to the bottom. And that will bring on the wrath of the Side Feed.

The solution to the problem of the fast Fleas is obvious. Once you're in the second attack wave, you want to make sure you keep at least nine Mushrooms in the infield. What's more, the number needed jumps up to 15 at 120,000 points, so as you get better and move through numerous attack-wave cycles, you must take heed of the new number required. Table 5 shows that for each 20,000 points scored over 120,000, one more Mushroom is added to the total required to keep the Fleas out of your hair.

To keep the Fleas off your back, you have to build up Mushrooms in levels 7–12 at the top of the infield's Zone. The paradox is that to best deal with the waves dominated by single links, you should have as much of the infield cleared as possible. If you have too few Mushrooms, however, the very fast Fleas keep falling all over the place, faster than you can get in under them. They eventually leave enough Mushrooms to cut off their own attack, but they leave them scattered all over the place. A part of the precious little time you have to take on the single links must be lost in mopping up the Mushrooms, which, when you do, may only bring down a storm of Fleas again.

For the solution to the problem, we must take another look at our old foe, Mr. Spider.

THE SPIDER—YOUR DANGEROUS ALLY

The Spider's healthy appetite for the infield's Mushrooms is designed to thwart any effort you make to prevent the Fleas from falling. Even when you do leave enough Mushrooms, the Spider gobbles them up, anyway.

Part of the answer to this strategic puzzle lies in part with how to handle the Spider. You can ignore it no longer. It is now your most powerful adversary. You must go after it whenever possible as your primary target objective, not just for the points, but to keep it from gobbling up those Mushrooms. Count the seconds between kills or after it exits so as to better anticipate the time of its next entry. The idea is to pounce on it the instant it shows itself, **before** it can make a meal of a single Mushroom more than necessary. You do not take undue risks, but your tactic has turned decidedly more aggressive.

Even if you were able to limit the appetite of your nemesis, there would be times it would gobble up enough Mushrooms to bring down a rain of Fleas. As it is, you need to keep more Mushrooms scattered about in the upper infield than you would really like. The sudden release of the Fleas only makes matters worse, especially since they are sure to contaminate your Shooter's Zone.

The designers of the game, whether wittingly or not, have provided a way to break out of this dilemma. They decided to make things even more difficult for you by narrowing the Zone the Spider moves in. The smaller the Spider's Zone, the harder the Spider is to elude. Closer in, it would also give you less room for error in timing any shot aimed at destroying it.

So, at 80,000 points, the Spider's window narrows by a single level. Yes, it becomes a bit more dangerous, but in so doing, it also no longer eats any Mushrooms in level 12. Every Mushroom left in level 12 at the moment you reach 80,000 points will not get eaten up. If you had 1, 5, 10, or 20, they would all stay there for good. Each and every one counts toward the number needed to prevent the Fleas from falling. And you only need nine to do the job.

There's a lot of skill involved both in building up enough Mushrooms in a single level as well as being able to recognize at

a glance exactly where that level is. Even if you can accumulate the required number in level 12, you must be careful not to shoot them out yourself. Remember, in going for the CENTIPEDE and other targets, you'll tend to send off a few stray shots. It only takes four strays in any column to wipe out a Mushroom.

But you are given some leeway. It's not until you get to 120,000 points that the number needed jumps to 15. Yet the Spider's window has continued to narrow, by one level more at 100,000 points, then another at 120,000 points. By the time you need 15 Mushrooms, you have three whole levels free from the Spider's appetite in which they can be permanently planted.

The more Mushrooms you can concentrate in the topmost levels of the infield, the better. In the ideal situation, you'd fill all of level 12 with about 30 Mushrooms, more than enough to get you beyond 300,000 points and to earn your expert status. It's true that by 160,000 points you could use any part of the infield from levels 8-12 in which to plant your Mushrooms. But the more Mushrooms you scatter in those levels, the faster will the single links pour through the infield. Your best bet is to keep as much of the infield Mushroom-free as possible.

Remember, there's a great advantage in leaving some of those Mushrooms, especially those planted in the top level or the one just below. Since you need nine to prevent the Fleas from falling (at 20,000 points), you could accumulate as many as eight in the top level or two and still keep them coming.

You should use these facts to modify your approach to the last two or three waves in the first attack-wave cycle. You don't want the Fleas to keep coming through the entire first cycle but only as long as long chains dominate the waves. Once you're up against the single-link assaults, you shouldn't be wasting your time trying to shoot the Fleas. That's the precise point you turn the spigot and shut off the Flea attack. If you've kept up to eight Mushrooms in levels 12 and 11, all you need to do is shoot one or two CENTIPEDE segments anywhere else in the infield and you stop the Fleas.

The point here is that you must get good enough to choose when the Fleas fall and when they do not. Cutting off the Flea attack must become more and more under your precise control. Once having gotten through the first cycle, the advanced

player knows that he must continue to keep the Fleas out of the picture for the rest of the game. Ideally, you'll make sure you never have to see a single very fast Flea (after 60,000 points). You will also use the early attack waves in the new cycle as opportunities to accumulate Mushrooms. Since the Fleas are no longer around to plant them, you must fall back on your skills with the CENTIPEDE. There are, in each attack wave, 12 links that are potential Mushrooms—twelve chances to make a shot that will place a Mushroom in the top levels of the infield.

There are, in practice, even fewer opportunities. Clean kills of a chain leave a single Mushroom in the wake of the kill, not many. If you take out the chains, it leaves fewer chances to create Mushrooms.

Successful mastery of the skill of precise Mushroom placement will really bring along your game. The success of the tactic of preventing the onslaught of the faster Fleas goes hand in hand with a much more aggressive attack on the Spider. By getting the Spider as soon as possible, you limit the time it can stay around to get up high enough to eat up those especially precious Mushrooms in the top level or two of the infield.

You don't go after Spiders just to keep them out of your hair. They are, for the advanced player, your primary source of points. You want to shoot them fast and close to score as many points as you can. You need those points for bonus Shooters, but you don't need them so badly as to take chances. Sure it's great to get 900 points, but the fact is that as the Spider's window keeps narrowing, it's hard enough to keep safely out of its reach, let alone go after it at close range. One of the secrets of playing CENTIPEDE well is in not letting the Spider lure you into taking chances. There's an opportune time to shoot the Spider. Sometimes you just have to wait it out and be patient.

The best of CENTIPEDE players also know when the Spider must be ignored and allowed to make his crossing unchallenged. You should not be embarrassed by reverting to a beginner's tactic—that of whipping the Shooter under the Spider to get on the safe side of it.

TAKING ON THE CENTIPEDE

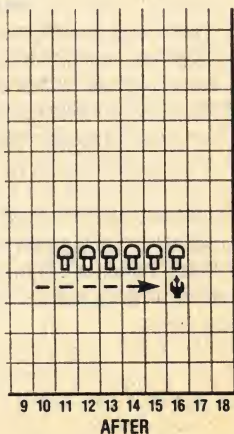
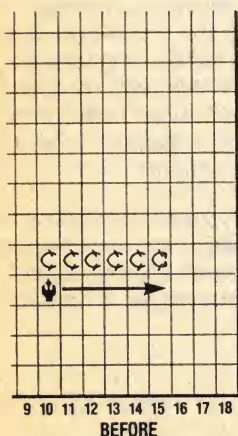
1. The Sweep Shot

The sweep shot is one of the sweetest shots in the CENTIPEDE game. Unlike all other shots, it must be executed with the Shooter in motion. The sweep is a shot that can be used on any CENTIPEDE chain (i.e., two links or more) that is traveling along a single level.

The Shooter is brought up under the tail end of the chain and then swept along under it while simultaneously keeping the FIRE button pressed. The closer you are to the chain, the more your rapid fire will operate, and the more likely you can destroy the entire chain. Figure 19 shows a typical sweep shot both just before and just after it has been made.

The sweep shot requires you to shoot on the run. To do the shot well, you must flick the Trak-Ball so it rolls fast and free, speeding the Shooter right along. You've been learning how to do this in your bouts with the Flea but not **while** you're shooting. Here you must focus the movement along a single level, for the major mistake made in executing this shot is to send the Shooter crashing up into the chain you're trying to destroy. Going for Fleas has un-

Fig. 19 SWEEP SHOTS



fortunately allowed you too much vertical leeway with your Shooter in its Zone. The sweep calls for precise lateral movement of your Shooter, especially when you come up right under a chain.

Though this shot is very effective, it has the important drawback of leaving a string of Mushrooms in a horizontal plane. These take a lot more time to shoot out than the single Mushroom left by the other clean-kill chain shots.

However, it's a good backup in the event that any chain gets too close to the bottom level. Chain kills are less effective when you're less than four levels away from the chain. If, for example, a four-link chain has reached level 3, you can use the sweep to polish it off.

In addition, and probably more valuable in the long run, is that the sweep shot teaches you to shoot on the run. Though you may initially direct the shot to continuous chains, the sweep can be used to great advantage whenever you have more than one link traveling in the same direction on the same level. Two links can be separated by up to ten columns and in effect be just like a chain with a head and tail and the body missing.

One limitation to the effectiveness of this type of sweep is that the shot gap between the links may not give you enough rapid-fire to get the second one. The point, however, is that shooting on the run can sometimes be effective when you're being over-run by single links at several levels in your Shooter's Zone. Any time single links bunch up and cluster in this way, the sweep shot can net you a good many of them with one quick flick of the wrist. You may not get them all, but you've thinned them out enough to give you a fighting chance.

One cautionary note: whenever you use a sweep on a chain or links in the level right above your Shooter's level, you must **always** move the Shooter from **tail to head**, that is, in the direction the CENTIPEDE is moving. Moving in the opposite direction would create a Mushroom that would cause the next link in the chain to bend down and crash right into you before you could get another shot off.

Sweep shots can be made with slower chains at a greater distance because the links move slowly enough to handle a

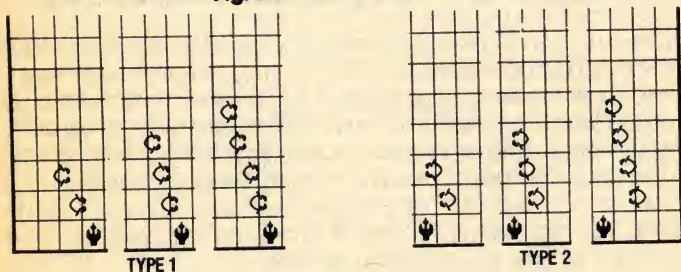
longer gap between shots. But you must also move the Shooter slower so as not to skip links.

2. Cluster Shots

The sweep is one way to handle clusters of single links in the in-field. There are a couple of other ways to cluster your kills, especially with those single links that have already penetrated the Shooter's Zone.

To do so first requires recognition of certain recurring configurations of links. Figure 20 shows two types of these configurations. The first type shows links that stack up, one level over the other and one column over, all moving as a group in unison. You can shoot the entire group by timing your shot at the leading link and then keeping the FIRE button pressed to take out the other(s) as they come into your line of fire. The second type occurs when the links stack up so that the link out in front is farthest from your Shooter. In this case, you must line up your initial shot at the farthest link and keep the FIRE button pressed. Each of the lower links will be taken out, from top to bottom.

Fig. 20 CLUSTER SHOTS



3. The Tunnel Shot

The outfield Zone is usually glutted with Mushrooms by the end of the second attack cycle. The barrage of Fleas unleashed in the first cycle combined with all the CENTIPEDE links you've shot has been filling it up all along.

The clogged outfield does work against you in one way you can change. In the long-chain attack waves, the chain is guided

down unpredictable paths through whatever empty areas are left in the outfield, which makes it much harder and takes that much longer to get at the chain and execute a clean kill. To counter this, you can purposely create a channel to guide the long chain exactly where you can always be waiting for it.

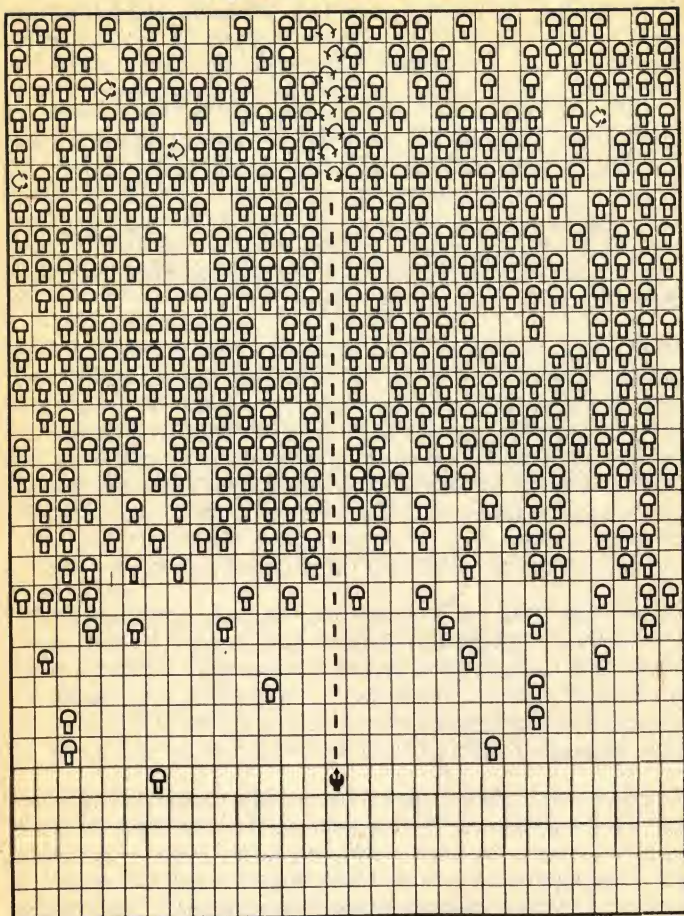
This special channel is called the **tunnel**. You create it by shooting out the Mushrooms all the way up to the top of the screen in one of the center columns, either 15 or 16. Because the long chain always comes out near these center columns at the top, it will almost always be led down the tunnel, which allows you to stay in the center and pick off the entire chain as it's fed down into your line of fire (see Fig. 21).

The tunnel shot buys you time, especially in the first eight or nine waves of the cycle. You can do in the chain immediately at the start of the wave, giving you that much more time to concentrate on single links as well as to clear Mushrooms. Moreover, it allows you to **control** the wave, getting you more quickly to the point where you have only one link left. Often, that link is still high up enough to give you many extra seconds to take care of other things. First, you can shoot out any Mushrooms left in the tunnel from the chain kill. Second, you can wait for the Spider.

For the first time, you actually have bought some breathing space. The tunnel allows the pace of the game to cool down under your direction and control. It allows you to cut down on the disruptions and to finally focus in on setting up for the Spider kill. Now it's a waiting game—your waiting game. You might even have enough time to wait out for one or two extra Spiders.

The key to this cooling down of the game's pace is your ability to get the chain cleanly, then quickly do in all the other links but one. It's that one you leave, that one you don't kill way up in level 10, that buys you this time. Most players, used to the furious pace of previous habit, are in too much a hurry to finish off the wave. They do it much too soon. After all, you're a good enough shot now that you can wait until that single last link gets down to level 2 before taking it out and ending the wave.

The more confidence you have in being able to take out the last link **at will**, at the precise time and place of your choosing, the more you can dictate the rest of the action in the interim.

Fig. 21 THE TUNNEL SHOT

You should actually build your tunnel in whatever spare time you have in the first attack cycle. That way, you'll be ready to use it to full advantage at the top of the next cycle, when once again the long chains start to dominate. Remember, maximum guidance of the chain into the tunnel is only assured when you've taken the time to keep it clear of Mushrooms all the way to the top at level 30.

There are many benefits to creating a tunnel. You can go for a chain sooner than if you had to wait for it to get by the glob of Mushrooms in the outfield. You can spend more time safely centered in the bottom level, when the Spider will never directly crash into you. The tunnel also gives you a possible shot at any passing Scorpion at all times. Any poisoned chain entering a tunnel can be quickly done in and for practical purposes is no different than an unpoisoned chain. All in all, the tunnel is a vital tactic in consolidating your advanced level play.

THE LAY OF THE LAND

By now you should realize that an important part of putting all that you've learned into practice depends on your familiarity with the specific geography of the Zones. We've given you guidelines to help identify each of the columns and the various levels of the playing field. These lines are absent in the real game.

You must know what level the Shooter is on at all times. You must know how far along each link has advanced and how many levels it must advance before hitting bottom. The bottom-six levels must be as familiar to you as the proverbial back of your hand.

The next six levels are crucial for planting those Mushrooms that can keep the Flea from falling. Do you know where level 12 is? It's one thing to have an approximate idea. It's another to sense it with certainty so you can correctly leave those Mushrooms or create new ones there when you need them. One way to develop your ability to recognize level 12 is to make a small mark on the screen during the Attract Mode before starting the game. Use it to separate outfield from infield. Make it tiny, just enough to cue you. If you make it unobtrusive enough, nobody else will even know it's there.

To create an effective tunnel, you must know where column 15 or 16 is. Again, a small mark can serve as a guide.

THE SIDE FEED ATTACK (STAGE 2)

The advanced player's game is often sharp enough to avoid the Side Feed attack through one or even two waves. The rate of entry increases according to each 10,000 points earned, whether or not you've triggered the Side Feed. By the time you get 100,000 points, then, if you do trigger the Side Feed, the links will be fed in fairly quickly. In effect, you've skipped the easy dozen or so links of the first stage, and you've gotten right down into the second.

The longer you're able to avoid the Side Feed, the faster the links will come out if and when you do trigger them.

It's like a game within a game, as your focus shifts from the larger battlefield to the smaller, confined battleground of your Shooter's Zone.

You have no time to wait for targets; you must go out and meet them head-on. Your worst enemy can be the Mushroom left in the wake of your successful shot. It must be cleared at once, primarily to ensure your mobility.

Ordinarily, the Mushrooms threaten to propel a link to the bottom and trigger the Side Feed. Since the Side Feed has already been triggered, the Mushrooms no longer pose this threat. Therefore, Mushrooms can sometimes be left close to either side wall, insofar as there they are a minimal impediment to your Shooter's movement. Generally, if time permits, you do want to eradicate the Mushroom left by a link you've destroyed. This is more vital in the center, which should be kept as open as possible.

Don't go for Spider points. Your task is to clear the links with quick, clear thinking and perfect pinpoint accuracy. Your primary objective is to clear all the links; your primary adversary is time. If you can see your way clear to finishing off the last couple of links, then don't bother to use up the precious time to wipe out the Mushrooms you've created.

You want to concentrate your shots. Don't go for single links on

opposite sides of the field. This forces you to lose time swinging from one side of the Zone to the other. Look for opportunities to save time. Go for clusters of links, not ones traveling alone. Look for multiple-kill formations in which links are in stepwise formations, one above the other. These can be wiped out practically as fast as a single link traveling alone. And the Mushrooms they leave will often be left lined up in a single column for quick extermination. Stay centered, if possible, ready to punch the trigger as links move into your line of fire.

It's no longer necessary to knock out the leading link first. Recognize, however, that any link reaching bottom will travel along its entire length before hitting one or the other side wall and rise back up into its retreat. Its presence absolutely forces you up off the bottom, as there is no way of shooting a link on the bottom level. This is one of the basic maneuvers you learn in handling the Side Feed. You move the Shooter up off the bottom, let the offending link pass under, and then return to the safety of the bottom level.

The bottom gives you a panorama of your enemies' current positions. Keep touching bottom for the perspective and overview it affords. One of the primary assessments concerns any link that's just risen off the bottom. It's now in retreat, so it might be best left until later, even though you're close to it now. Links that are attacking should always take priority over those in retreat.

More often than not, even advanced players are unlikely to survive the Side Feed attack. So pay attention to which wave you are in when the Side Feed is triggered. If it's one of the last few waves, you can be better off clearing all the Mushrooms in your Zone than on beating off the Side Feed. If it gets to look as though you're not going to get out alive, let the links pour on in and go for every Mushroom. Do not shoot links that create more Mushrooms.

Now, after you're killed and the attack wave repeats, you won't be facing it with the added handicap of a cluttered Shooter's Zone.

BOTTOM FEEDS

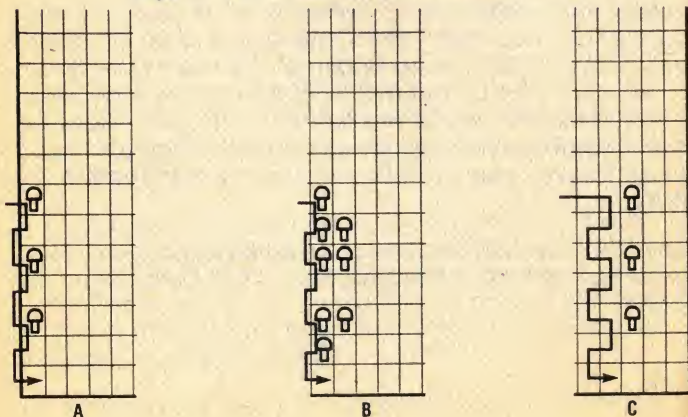
Mushrooms flat up against either wall in the Shooter's Zone can be used to prevent the Flea attack. Such strategically placed Mushrooms do the least harm in your Zone because they are mere inward extensions of the side wall and contribute the absolute minimum to the CENTIPEDE's rate of descent. Furthermore, they pose no impediment to your Shooter's movement. However, those same Mushrooms can create other headaches, especially in the event a Side Feed gets triggered.

Several times, I've run across players who swore that they'd encountered situations when the Side Feed, instead of sending the links out on level 7, sent them out on level 1, the very bottom of the playing field. Others claimed these people had to be hallucinating because they had never seen it happen.

This puzzle was solved when I realized that there was a special situation that might give a player the distinct impression that the links were being fed out on the bottom. This happens when either the first or thirtieth column has Mushrooms in levels 3, 5, and 7 (see Figs. 22 A and B).

In this special case, the first link, just prior to coming out, hits the Mushroom on level 7, drops and reverses on level 6 and hits the

Fig. 22 BOTTOM FEED CONFIGURATIONS



side, drops again, and hits a Mushroom on level 5 and continues in that fashion, zigzagging until it finally emerges on the bottom. Since the zigzag has occurred at the edge of the screen's visible area, it creates an illusion that the feed is coming directly out the bottom.

Notice that the 3-5-7 configuration is present also if Mushrooms occupied the second, fourth, and/or sixth levels as well. Therefore, any combination of Mushrooms in the sidemost column that includes levels 3, 5, and 7 would be as dangerous if the Side Feed were triggered.

As dangerous are certain configurations of Mushrooms left in the Shooter's Zone near but not necessarily adjacent to the side wall. Single links (or chains for that matter) entering the Shooter's Zone can be hurtled very quickly to the bottom and thereby trigger a sudden Side Feed attack. A typical configuration that will cause this is shown in Figure 22C. Notice that only a few Mushrooms are needed. It helps to remember that each side wall permanently functions like a continuous column of Mushrooms.

REGULATING FATIGUE

When I first started playing CENTIPEDE, I was really resentful when someone asked if I wanted to play together. I'd go along to be a nice guy, but I just knew that taking a pause between "lives" would throw off my game.

I think I was right, up to a point. The kind of concentration CENTIPEDE demands makes interruptions difficult. There is a definite rhythm that is generated, a pulse that sets up your timing. When you take turns, the pulse can be lost. Finding it again eats up precious time.

As you get better, you tend to play longer on each gun. You get so good that soon you're playing for a longer time on one gun than you were playing on all three guns together.

That's when the old fatigue factor comes into play again. The same rest period that was recommended between games now becomes valuable between guns. But at most you have a couple of seconds between guns.

For this reason, I strongly recommend that advanced players

who can score above 100,000 points make it a point to play with someone else.

There are several advantages to this tactic. Not only do you get to rest, but you also have an opportunity to think through your current situation and ready yourself with more effective strategies. You can, for example, recall which attack wave you'll be seeing next. You can, by remembering which Mushrooms are left in your Zone, plan the most efficient way to wipe them out. In addition to rest, the time gives you a chance to formulate a strategy and to devise and develop a plan of action.

ADVANCED GAME PLAN SUMMARY

What To Do

- **Make Spiders your primary target for points.**
- **Keep Fleas from falling with correct number of Mushrooms in infield.**
- **Accumulate Mushrooms in top two or three levels of infield.**
- **Respect the danger of the Spider's narrowing Zone.**
- **Use sweep shots only when needed.**
- **Cluster your kills.**
- **Clear Mushrooms from Shooter's Zone as they form.**
- **Clear and maintain the tunnel.**
- **Use the tunnel clean kill.**
- **Buy time by always leaving one link to the last moment.**
- **Use the tunnel to shoot Scorpions.**
- **Learn the geography of the infield's levels.**
- **Learn effective Shooter maneuvers in the Side Feed.**

What Not To Do

- **Take chances going for the Spider.**
- **Finish off a wave earlier than necessary.**
- **Trigger the Side Feed.**

THE EXPERT'S GAME PLAN

GAME EVENTS REVIEW

(300,000 +)

- Twenty-four mushrooms in infield prevent Flea attack up to 320,000 points. One more is added to total needed for each 20,000 points scored.
- Fleas drop very fast only.
- Fast CENTIPEDE attack waves only.
- Fast Spiders only. Window to level 7 until at 860,000 it widens to level 12.
- About three-fourths of Scorpion crossings are fast; the other one-fourth are slow.

A full-fledged advanced player has become adept at turning over the attack-wave cycles, one after another, almost like clockwork. You've learned to plant enough Mushrooms in the right places to keep the Fleas from attacking. You're also rarely taken in by the Spider. You know exactly when to risk the 900-point shot and when to settle for less. You're not at all unwilling to get on the safe side of the Spider whenever necessary and sacrifice those big points.

You've settled into a relatively calm waiting game for most of the cycle. You wipe out long chains in your tunnel, which you are fastidious about keeping clear. You are careful to always leave a single link free until it becomes necessary to shoot it. Your watchwords are **never finish an attack wave until the last possible moment**. You've learned to make optimal use of your time.

When you run into problems, it is usually in the last two or three waves of the cycle. When you finally do lose all your Shooters,

you find it happens mostly when you get stuck in one of those last single-link assaults. But, after all, nobody's perfect.

Not perfect, then, but **expert**. Your expert game must now be guided by new watchwords—**don't miss**. The perfecting of any shooting game is distilled into that simple, inescapable truism. You could play CENTIPEDE forever if you never missed a single shot. Of course, real people in the real world do miss.

An essential part of that striving must now be focused on mastering the toughest part of CENTIPEDE, the dreaded Side Feed attack. Nobody ever achieves the perfection of preventing it, not even the expert. Therefore, earning your expert stripes rests on your ability to turn it, more often than not, to your advantage. Experts milk the Side Feed for all its worth, and as it turns out, that can be for plenty of points to earn those valuable extra Shooters.

MASTERING THE SIDE FEED

1. The Turnover

The key to becoming an expert at CENTIPEDE is in learning the secret of the Side Feed. Granted, you can turn over the attack-wave cycle with regularity. Still, now and then you'll trigger the Side Feed, and unless you can avoid that with certainty, you are inevitably doomed to face it. For this reason, most advanced players reach a plateau at that point in the game when the Side Feed comes in so fast that it regularly overwhelms you.

As it turns out, this usually occurs from around 300,000 to 400,000 points, erecting a formidable barrier to further progress. But all is not lost. You will be saved by the fact that the Side Feed, like the attack waves, **has a cycle that can be turned over**.

The most direct way to turn over this cycle is simply to never trigger the Side Feed in the first place. If you were somehow able to thwart it with certainty, then it's a moot point that when you scored 400,000 points or so, the clock controlling the rate of the feed will rewind to its slowest rate. If you are able to prevent the Side Feed, the rate of the link's entry is irrelevant, no matter what speed it is set to come in.

The fact is that even the best of players will confront the Side Feed. Sooner or later, a link gets through to trigger it, and you must be prepared to deal with the consequences. The relevant fact here is that the better your score (up to the turnover score of around 400,000), the more difficult it will get, and the harder it will be to survive the attack successfully.

At higher-score levels, the feed gets so fast that only a single column width separates one link's appearance from the next. If that doesn't spell your demise, you're probably an alien equipped with a unique nervous system heretofore unknown on earth.

The point is that once you do score close to the 400,000 points necessary to send in the links at their fastest rate, even if you fail to survive the specific attack, you can survive in the game. All you need is a few extra Shooters in reserve to carry you past the danger point.

If you hold out beyond the 400,000 or so points, the next time the Side Feed is triggered, it will seem like a snail's pace. In fact, what you have done in turning over the Side Feed is no different than what happens when you turn over the attack-wave cycle—only on a grander, more global scale in terms of the game as a whole. Just as the attack-wave cycle moves from easy to hard through the 12 waves, so the Side Feed attack cycle moves through easy to hard by increasing the rate of entry of the links at 10,000-point intervals. After that 400,000-point juncture, it will be easy sailing for a while.

2. Tactics

The more you play CENTIPEDE, the more you are aware that the Side Feed is what makes or breaks the game for high score both in how long you can prevent it and how well you deal with it once you do get into it.

By now, you should be able to hold your own against the Side Feed. The battle can rage fiercely for some time, with the odds shifting first in your favor, then back to the CENTIPEDE's. Often, you come within a single link of clearing the screen, only to lose ground again because of a single misplaced shot. It's something like going up a down escalator—one step forward, two steps

back. The slightest pause, a moment's hesitation, and you're back down four or five more.

You must now not merely be accurate but fast. The speed at which you can move your Shooter through a Zone scattered with moving links defines your potential. You must be able to weave in and out, good enough to fit between two links separated by only a single column or level. Threading that needle takes a dead eye and perfect control of the Shooter.

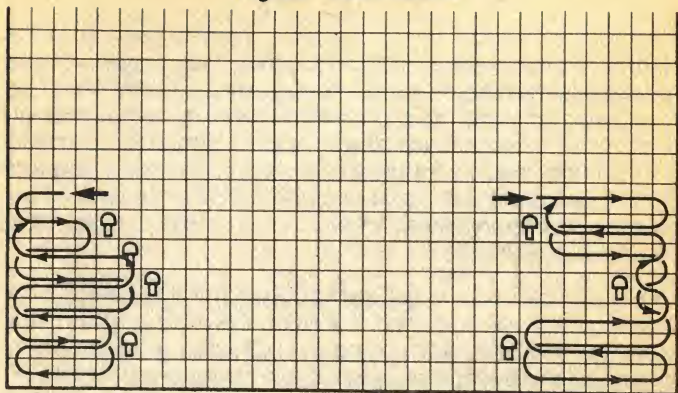
You must use a modified sweep shot, no longer on a chain of links but on a scattered array. You must learn the value of keeping one side or the other clear of Mushrooms, even at the sacrifice of allowing more links to enter. You must learn to let links accumulate or cluster before you shoot them, not wasting time going for one link here and another link way over there. You must develop the confidence to let Mushrooms accumulate in clusters, too, rather than take them out one at a time.

There are many times when you have to abandon the safety of the bottom and take refuge higher up in the Zone. Your safest spot is often in one of the upper left or right corners at the top of your Zone. Retreat to it when necessary, but only for a split second before you move back on the attack. You will now master shooting on the move rather than from a fixed position. Before, it was stop, hit, and run. Now it's hit and run—no stopping.

3. Trap Loops

When you're up against a slew of links, it's better to concentrate your energies on one side rather than wildly swinging your Shooter from one side to another. There's still value in letting the links come to you. Clear out half the field, then shift over to the other half. Mushrooms left to cluster near one side wall or the other will have a tendency to keep links in a confined circular loop on that side (see Fig. 23). This often buys you time to work on clearing the links from the other side.

These closed loops can serve to trap a great many links. At first glance, this seems to work to your advantage, as it can keep all those links out of your way. However, you must not forget the Spider. One gobble and you're a goner, as a wave of links are suddenly and speedily released from their former trap.

Fig. 23 TRAP LOOPS

Mushrooms that make up a trap loop bear a suspicious resemblance to the type of configurations leading to a Bottom Feed. It's merely a matter of one Mushroom, and what was a trap can suddenly turn into a Bottom Feed. A smart player of the Side Feed uses traps to buy time but never allows them to stay around too long. Never wait for the Spider to open the trap; it's best done by your own hand and under your own control.

One more tactic that's claimed to be effective in handling a Side Feed is to shoot two links on level 2 and leave two Mushrooms with a couple of columns between them. This will have a tendency to channel links so that they never travel across the bottom level at the center, but instead travel off the closest side wall. In effect, the two Mushrooms become a fortress, allowing you to take a protected permanent stand at the bottom where you can pick off all the links as they pass above you in levels 3-7.

This fortress would be more effective than it is in practice if it were not for the Spider's appetite for those Mushrooms. Moreover, that links bounce off each other throws off the predictability of their pattern of advance that this fortress depends on.

4. Practice

One major impediment to mastering the Side Feed attack is that you actually get to tackle it so rarely. If you're good, you're good at preventing it, which is ironic because it's the one thing you need to practice the most. For that reason, I strongly recommend that experts devote special attention to practicing the Side Feed. Fortunately, one can turn this into a game all its own. See under the Side Feed CENTIPEDE Game, Section Four, Unorthodox Playing Styles, for more on how to play this exciting variation of CENTIPEDE.

With practice, you can get very good at the Side Feed game. There can be no more than 12 links on the playing field at any one time. Theoretically, if you could hold your own against all 12 at once (and the Spider), you'd have conquered CENTIPEDE. I know of no person who has ever accomplished this feat, but then again, I've never seen players who've seriously taken up the Side Feed as a game in itself. My hunch is that enough practice might just do the trick.

FINESSE AND FINE TUNING

Every game has its more subtle side. What follows are the esoteric details that experts use to fine tune and round out their game:

1. At times, you will need to use the CENTIPEDE links to create Mushrooms in strategic levels of your infield, especially after the Fleas speed up at 60,000 points. Long chains coming through the tunnel in the easier waves can provide a large number of them at once. In this case, you do not go for the chain first but for the single links, allowing the chain to emerge from the tunnel intact. That's when you blast it, ideally with a sweep shot, to leave as many Mushrooms on the highest level in the infield as possible.
2. Facility with your shooting skills and maneuvering the Shooter gives you the power of hot pursuit. Links that are beyond your Shooter's line of fire have traditionally been allowed to hit the side wall, advance a level, and then get picked off on their next pass. This worked fine as long as you were concentrating and clustering your kills by digging in at one location. With hot pursuit, you no longer wait for the link

to come to you; you go to it. More precisely, you catch up to it **before** it advances another level.

One common situation calling for hot pursuit is whenever you have two single links traveling on the same level in the same direction. If your Shooter is behind the links, you shoot the last one (not the leading link) and then catch up with the first. If your Shooter is in front of the links, you resort to using the corollary to hot pursuit, which is fast fire. You shoot the leading link and are ready with another shot to take out the next and even any others that follow it. This requires absolutely perfect, pinpoint timing and the ability to get off single shots in very fast succession.

3. At the start of the wave, be aggressive. Place your Shooter in its highest level in the center to meet the invading links as soon as possible. Take on as many as you can, retreating a level at a time until such point as one gets by. Then and only then make a full retreat to one of the bottom corners.
4. You can cluster kills among different targets at the same or nearly the same time. Line your Shooter up in a column where you see a Spider and link, a Flea and a Spider, or any combination of targets that are overlapping, one above the other.
5. Some CENTIPEDE players prefer to fend off the last two or three waves with a poisoned field rather than not. There do seem to be advantages. The poisoned links tend to rush down concentrated in just a few levels. Even though they hit bottom, they do not trigger the Side Feed. Instead, they must travel in their retreat-loop cycle. You have time to shoot them on both the way back up and back down, the equivalent of a dozen levels. Because your Shooter's Zone is kept clear, there are rarely Mushrooms to speed either the retreat or the new advance. Moreover, you are able to shoot links at close range because they're in your Zone the whole time.

However desirable it is to take a poisoned field into the last few waves, should you lose a life in those waves, you lose the advantage of the poisoning. If you're one of those who prefer it, learn not to shoot Scorpions if and when they appear to repoint the field.

6. The sweep shot comes in very handy in emergency situations. You can use it whenever you have any remnant of a chain reaching level 2 and about to trigger the Side Feed. The sweep is the safest and most-time-efficient way to do it. However, it does leave a wide swath of Mushrooms in its wake that you'll have to mop up quickly.
7. Sometimes a wave of links comes through a poisoned field and some of the links are poisoned and some are not. This can be very confusing and dangerous. If you assume a link is poisoned, but it is not, it will trigger the Side Feed when hitting bottom. To minimize the danger of making this mistake, you should only go for Scorpions after at least one level of Mushrooms (ideally, a thickly planted one) has been poisoned. Otherwise, if you shoot a Scorpion in midcrossing, you bring the mixed-wave curse down on yourself.
8. If you have six Shooters to your credit and you lose a Shooter **prior** to reaching the next bonus level, you will earn back another at that bonus level. However, if you lose the Shooter **after** reaching the next bonus level, you will have lost the chance for the bonus until reaching another bonus level. So if it looks like you're in bad straits and likely to lose your Shooter (i.e., a very fast Side Feed), it's better to go down before you reach a bonus level than to hold out for those few extra points that might put you beyond the bonus.
9. On slow waves, if you're left with a two-link chain, do not shoot either one until necessary. Shooting one causes the last one to speed up to the fast rate, which steals time away from you to clear Mushrooms, start your tunnel, score more Spider or Flea points, and so on.
10. You can sit tight with your Shooter when it gets caught immediately adjacent to a column in which a Spider is bouncing. Because it must slash away at a 45° angle, it can never attack you there.
11. Watch out for the rare but dangerous event. A link can be carried down on the back of a Flea, violating the ordinary rules governing its advance. This is dangerous because it will immediately trigger the Side Feed if the Flea gets by you. If you are too close to the Flea when you can shoot it, the link may survive to destroy you.

REGULATING FATIGUE

Conventional CENTIPEDE is a very grueling, exhausting, relentless game. The advice to play with a partner is one way to take a breather and a break from the action. But playing with someone at your level can often mean long waits between guns, long enough for you to get "cold," the way any athlete would.

What's needed is a short break, one that won't let you lose the pulse of your game. For experts, the solution to the problem is found during the intermission between guns. For most players, these are too short to stretch your fingers and get any real rest. Experts, however, usually stay so long on a single gun that by the time they lose a life, half or more of the Mushroom field is poisoned. Restoring those Mushrooms can take a full minute or two, just long enough to stretch out a bit and freshen up for the next wave.

CENTIPEDE MASTERY

The expert is constantly assessing his game to order his priorities. At any one instant, he must choose among:

1. Shooting the chain
2. Shooting single links
3. Clearing Mushrooms
4. Planting Mushrooms at specific locations
5. Clearing the tunnel
6. Going for Spider or Scorpion points

These assessments have become second nature, the choices dictated by instinct.

All along, you've been acquiring knowledge about what happens, when it happens, and why. You've learned how the computer program is designed to structure and control the game's events. The object is to keep you, the player, at the mercy of the computer and its whims, to keep you on the losing side. But you are learning to control the game's events rather than letting them control you.

This is the core difference between the expert and all other players. The expert is the master of the game. You do not op-

pose the game's structure and design but match your game to harmonize with it. If the Fleas start speeding up at 60,000 points, so be it. Rather than take them on and fight a losing battle, you would rather design your strategy to prevent their appearance. You put their entry under your control.

Your control of the game is ultimately a function of the skills you have mastered. The more confident you are in handling faster Side Feeds, the more you can dominate the Side Feed rather than have it dominate you. It need not be avoided when you are its master. It's in knowing your limits, knowing your strengths and weaknesses and how to make the most of them, that true mastery is attained.

EXPERT GAME PLAN SUMMARY

What To Do

- Overcome the Side Feed if triggered.
- Watch for the turnover of the Side Feed cycle.
- Master shooting on the run.
- Practice the Side Feed game.
- Develop finesse and fine tune your tactics.
- Practice.
- Always strive to perfect your game.

What Not To Do

- Miss your target.
- Be the victim of a Bottom Feed or trap loop.

4

UNORTHODOX PLAYING STYLES

INTRODUCTION

Every video game—every game, for that matter—has a set of rules. These rules define boundaries for conventional strategies that help you beat the game. They create limits, but opportunities as well—a player can deviate from conventional wisdom. This does not call for breaking the rules but for innovation within their limits.

You've been exposed to the conventional CENTIPEDE game and to the conventional wisdom that has evolved in how best it should be played. Now we turn to the unconventional game and to the unorthodox ways to play it.

Some of you will be tempted to try the new ways to play, even to substitute one or another for your current style. As with any strategy, you'll have to practice to master the required tactics. Others will be wary, reluctant to go off in a new direction. You might even be turned off by the notion that there are other ways to play, convinced that it's heresy to even consider them. Though the rules are the same, you may feel the spirit of the game is violated. In any event, you still might want to take a peek at this section.

A LITTLE HISTORY

The Blob method was invented and perfected by four fellows in Mountain View, California. They are Franz Lanzinger, Eric Ginner, Sam Mehta, and Eric Wang. Together, they teamed up to tackle the problem of an impasse they experienced in passing 300,000 points when using the conventional CENTIPEDE strategy.

There were several stages in cracking the code. I use the metaphor of a safecracker and of programming (in computer programming, you write "code") together for good reason. To have come up with their alternative strategy required percep-

tive observation. They had to keep their ears close to the heart of the game to figure out what made it tick. They had to observe what happened, when it happened, and why. They had to piece together this information to see if there was a way to get around the people at Atari who devised the game so that nobody would find a flaw in the system.

But find it they did. It was the key to unlocking the game, one thing that could break it out from its perceived limits and allow you to do the Impossible—go over a million points.

It's a pretty good bet that Atari did not figure that many people would ever break a million points in CENTIPEDE. That their scoring display only goes up to 999,999 points is damning evidence of their overconfidence. But break a million, our heroes surely did, proving once again that no matter how much ingenuity goes into inventing a flawless game, there'll always be some curious kids out there to figure out a way to beat it.

Franz remained a theoretician, while his younger counterparts were the ones to first take the Blob method into the front lines and each go over the million mark. Franz readily admits that his friends are much better at the conventional game than he is. He suspects that it's partly because they are younger and have sharper reflexes. But the old man of 26 is quick to point out that you don't have to be especially quick to learn how to use the Blob method.

Franz himself eventually toppled a million, going on to become the world's highest scorer on CENTIPEDE—a staggering 2,999,999 points. Franz modestly points out that any one of his cohorts could have achieved a similar mark had they been willing to invest the 6 hours necessary to do it. You see, the Blob method requires about 2 hours (give or take 10 minutes) to earn that cool million and 2 hours for each additional million you want to rack up. Once you've mastered the Blob method, it's theoretically possible to score as many million points as your stamina and endurance allow. However, unlike ASTEROIDS, where it's possible to tally literally hundreds of extra ships, CENTIPEDE limits you to six. You can't even beg a bathroom break without being done in during the interim. Under the circumstances, I'd think that Franz's mark is likely to hold up for some time.

You may wonder how it's possible to score more than a million points if the machine's display won't register it. What does happen when you go over the top? Quite simply, the display goes back to zero, and the scores start from scratch. The machine therefore is "turned over," and you have to start going for points all over again. Therefore, the only way to prove you've hit a million (or more) is to have witnesses to your miraculous feat. Franz chose to end his last million cycle one short of a million to ensure that his feat became a matter of record on the Vanity Table of the machine.

THE TOPSY-TURVY TACTICS OF THE BLOB STRATEGY

Step 1: Clear Mushrooms and Start the Blob

The goal in the first wave is to clear all the Mushrooms from the screen. You want to avoid being blocked by those Mushrooms randomly placed in the infield at the start of the game. Though they could be used in your initial Blob, it's better to clear the entire screen first. You can then create the five Mushrooms you need in the infield **after** the outfield is cleared. You will create these Mushrooms and all Mushrooms from then on by shooting CENTIPEDE links in your infield Zone and no higher.

However, aiming at Mushrooms in the outfield can be very disconcerting because the long shots required can result in hitting the CENTIPEDE, which has the effect of creating yet more Mushrooms. So you have to be very careful to avoid hitting the CENTIPEDE on its way down through the outfield. Too often, a beginner at the Blob method is frustrated because he can't seem to get around hitting the CENTIPEDE.

Also, stray shots can meet CENTIPEDE links high up on the screen, generating more Mushrooms than were there to begin with. Notice that since it only takes a single shot to destroy a CENTIPEDE link, just one bad shot will undo four good shots. (Remember, it takes four shots to wipe out a single Mushroom completely.) For each new Mushroom created with a single stray shot, you'll need four well-placed shots to wipe it out. With a little practice, however, you can get your aim and timing

down so that you will be able to shoot the Mushrooms at the top without hitting any links.

The ability to line up your Shooter in the right column will come in handy here. This is learned from going after the Fleas in the conventional game.

You'll still find that often there's not enough time in the first wave alone to clear all the links before the CENTIPEDE gets to your Zone. One trick is to sacrifice your life purposely. In so doing, you stay in the first attack wave and buy the extra time needed to clear the rest of the Mushrooms. If you were to wipe out the CENTIPEDE and its links, you'd move into the next wave, the one in which the Fleas start falling. Of course, you could prevent this by leaving the five Mushrooms in the infield, but if you do, then those Mushrooms might block your ability to go at Mushrooms higher up in the same column. If you were to shoot them out, you'd run the risk of liberating the Flea, which must be avoided at all costs if the Blob strategy is to succeed.

You can move into the second wave without any suicidal gesture and still succeed in eventually clearing the outfield. To do so requires hitting the CENTIPEDE links in the first wave that you use to create your initial Blob so that they wind up only in columns that are already cleared.

In any event, at least five Mushrooms must be planted anywhere in the infield **before** the second attack wave starts. This will have the effect of preventing the release of Fleas and will therefore keep the outfield Zone completely clear of Mushrooms. Remember, Fleas plant Mushrooms in the outfield, so no Fleas, no Mushrooms.

Step 2: Go for Points

The major reason to keep the outfield Mushroom-free is to force the CENTIPEDE and its single links to travel back and forth along the entire width of the screen on every level. Also, with no Mushrooms, they can advance only one level at a time and only when hitting a side wall—overall, a snail's pace.

How long will it take for the CENTIPEDE to get to the infield? With only the side walls to advance them, it must cross 30 columns in at least each of 18 levels (levels 13-30). Since it moves at the

rate of about 15 columns per second, you have 36 seconds of waiting time before you have to concern yourself with the CENTIPEDE.

It's time to rack up as many Spiders and Scorpions as you can. Since there are no Fleas and no CENTIPEDES to distract you, the Blob method buys you the time and space to focus in on one thing, points.

The Spiders should be your prime target. Remember that it takes 4 seconds after a Spider kill for another to appear. Add an extra second to go for it and you can see that you can polish off a Spider about every 5 seconds. If you're expert enough to get 900 pointers, it's not impossible to score about 10,000 points from Spiders alone during the CENTIPEDE's slowed descent. (There are about eleven 5-second intervals during the 55-second descent, giving 11×900 points.) Add to this the 1,200 or so points you get from wiping out the CENTIPEDE heads when they finally do arrive and you can see that it's theoretically possible to score enough points to earn an extra bonus Shooter in practically every attack wave, even without the Scorpions.

The Scorpions are a much easier target now. However, there are some risks you take by going after the Scorpion. First, it diverts your attention from the always dangerous Spider. Second, you might accidentally hit one of the links in the outfield, creating the headache of wiping out the Mushroom it leaves with four more shots. Third, and perhaps most important, you cannot afford to give the Spider too much time on the screen. Each second it's left to its own devices, it will gobble up more Mushrooms from your Blob and bring you perilously close to the deadly (at least to the Blob strategy) release of the Fleas.

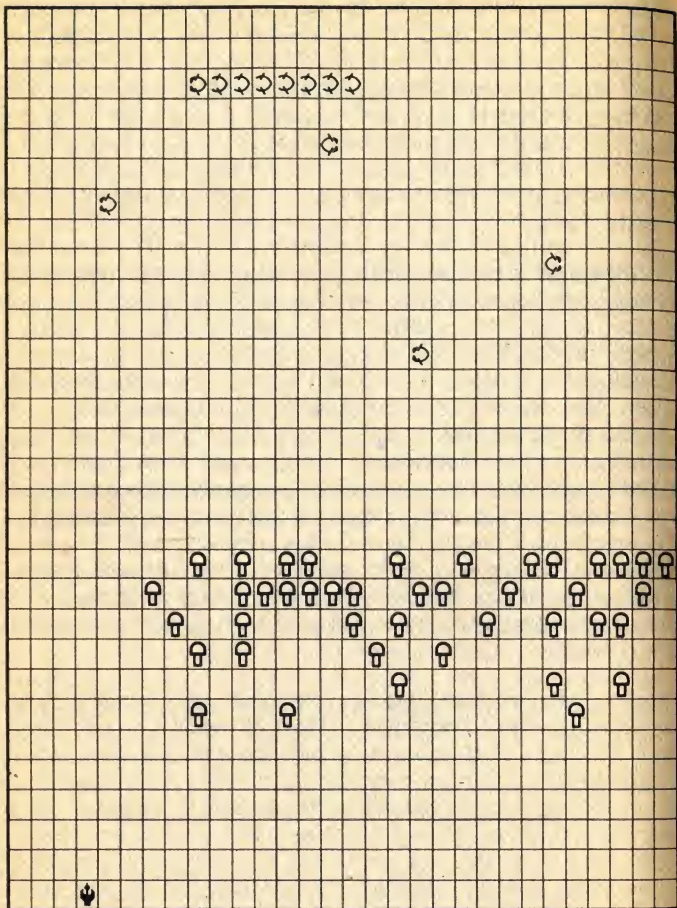
Step 3: Build Up Your Blob

The key to the success of the Blob strategy is to continuously prevent the Fleas from planting Mushrooms in the outfield. As it turns out, this can be done by leaving a certain number of Mushrooms in the bottom-12 levels of the screen. Up to 20,000 points, you will need at least five. Beyond that, there is a gradual increase in the number of Mushrooms needed to prevent the appearance of Fleas based on how many points you've earned. (Refer to Table 5 for the exact number required.)

You must wait for the CENTIPEDE and be ready to pounce on it when it enters the Blob Zone (levels 7-12). The object is to create as many Mushrooms out of the CENTIPEDE links as possible. You **do not** want to execute a chain kill because, as you'll remember, it tends to leave a single Mushroom rather than many. You do, however, want to use the sweep shot. Also, you **do not** want to wipe out a Mushroom once it has been created, as you do in the conventional strategy, because the Blob method requires the building of the Blob to assure the continued thwarting of the Flea's attack.

Another very important point: you want to keep several columns (from five to ten) on either side of the Blob Zone completely free of Mushrooms. This creates a channel through which the CENTIPEDE will be guided into range and a place where you can set up to be ready and waiting when they get there. You can wait until the chain or link moves over to your Blob to shoot, thereby creating more Mushrooms. Or you can actually shoot the links while in the channel either if you have more Mushrooms than needed or if you're under pressure from a late attack wave. Remember to shoot away any Mushrooms created from these shots so as to keep the channel open. Also, you'll want to keep your Shooter's Zone free to ensure optimal maneuverability and shoot out any Mushrooms created from links shot in levels 2-6. One possible Blob configuration is shown in Figure 24.

The first five or six attack waves in the cycle contain a long chain as the predominant part of the attack. These can be best used to build up the Blob. However, in the later attack waves, when the single heads are coming down, it's even a good idea to shoot through your channel into the outfield Zone to wipe out some isolated links. This reduces their number sufficiently so that you can handle the rest when they come through your Blob Zone. When destroying a link in the outfield Zone, remember to take out the Mushroom it leaves so as to keep it clear for the next wave. Another factor is to watch out that your score does not outdistance your Blob building and accidentally bring on a storm of Fleas. Pay strict attention to the 20,000- and 120,000-point plateaus where there is a big jump required in the number of Mushrooms needed. After 120,000 points, you need only one more Mushroom for each plateau, but that means one Mushroom more or less can make the difference.

Fig. 24 TYPICAL BLOB FORMATION

Careful building of your Blob takes priority over going for points. How do you know when you have enough for a particular score? With the higher numbers, you don't really have the time to count. The best I can make out from talking with those experienced with the Blob method is that you have to trust your instincts; over time you get a sense of when the Blob has dwindled down to dangerously thin ranks of Mushrooms.

Related to this is the width of the open channel. At first, it might be ten columns wide, but as the score increases, you'll need to use up some of that channel to increase the size of your Blob. Eventually, you'll be on the safe side to keep the channel down to only five or six columns in width.

Still, you must be wary of the Spider's voracious appetite for Mushrooms; at any time it can do you in, sometimes with a single gulp. The Spider plays a crucial role in your success or failure with the Blob. As the Spider darts across the Blob Zone, it can reduce the number of Mushrooms in it. If Spiders eat Mushrooms faster than you can plant them by shooting CENTIPEDE links, you will soon find that the Fleas will start dropping like fleas, doing their dirty work of planting Mushrooms in the outfield. This must be avoided at all costs because the success of the method hinges on keeping the 18 levels of the outfield clear of Mushrooms. It is vital, therefore, that Spiders are destroyed as soon as possible after they appear. It is also a good idea to keep more Mushrooms in the Zone than are actually needed. You never know when a Spider will eat up several, so it's good to be on the safe side.

Step 4: The Spider Connection

The Spider's Zone gets smaller the higher your score becomes (see Table 6). At 80,000 points, the Spider confines its movements to only 11 levels. For every 20,000-point increment, the Spider's Zone narrows another level, until you reach 160,000 points, where it is now only seven levels high. It will dart in, bobbing and slashing, getting close to you quickly, confining its movements in and nearer to your Shooter's Zone. The Spider is much more dangerous at such close range, making your Shooter an easier target and itself an even tougher one. But, because the Spider's movements are limited to lower and lower

levels, any Mushrooms making up your Blob that are contained in higher levels will no longer get eaten up by the Spider!

At 80,000 points, therefore, any Mushrooms you've been able to plant in level 12 will be safe from the Spider's appetite. Any new Mushrooms you plant there will also be out of harm's way. Your only enemy is yourself, in that sloppy shooting is the only way to do in these precious permanent Mushrooms.

Therefore, prior to reaching 80,000 points, your aim is to start building a solid "roof" of Mushrooms in level 12. You must learn to recognize where level 12 is, of course, to do this. Ideally, before reaching the next score that lowers the Spider's window another notch, you would build up another level of Mushrooms in each level, one at a time, working down through the five levels. If perfect, you would have created the ultimate Blob—a solid block of Mushrooms from 20 to 25 columns wide and five levels high that would never be eaten (see Fig. 25).

The ultimate Blob, however, is an ideal that's not realistically obtainable. If the Blob has any "holes" in it, that is, not all the positions that could be occupied by Mushrooms are, in fact, occupied by Mushrooms, it's very hard to fill them up. In fact, the topmost level of the Blob (level 12) cannot be reached without first wiping out a Mushroom in the same column a level below. Once a Mushroom occupies any level, for that matter, you cannot build Mushrooms in that column at any level above it without first wiping the blocking Mushroom(s) out. Since that defeats the goal of creating more Mushrooms, expertise in building the Blob rests on your ability to build from the top level down.

Short of the ultimate Blob, the next best alternative is to create a solid roof in the topmost level without any holes in it. This is especially advantageous because you will now be able to predict where any CENTIPEDE link will emerge once it runs into that flat roof of Mushrooms. Since there are no Mushrooms above it, the CENTIPEDE will either advance by hitting the left or right side wall at the thirteenth level. If it hits the left side, it will be guided through your channel. If it hits the right side, it will streak down along the wall and emerge on the far right. Thus, there are only two places the CENTIPEDE links can emerge from the screen, and you can set up to be there when it happens.

This is especially helpful with the later waves, where single links predominate.

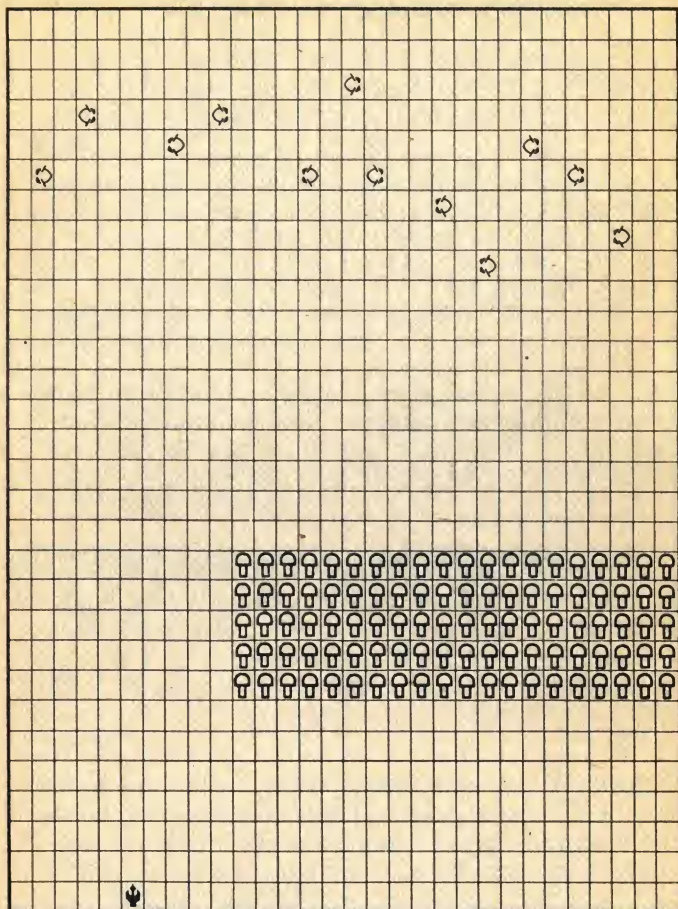
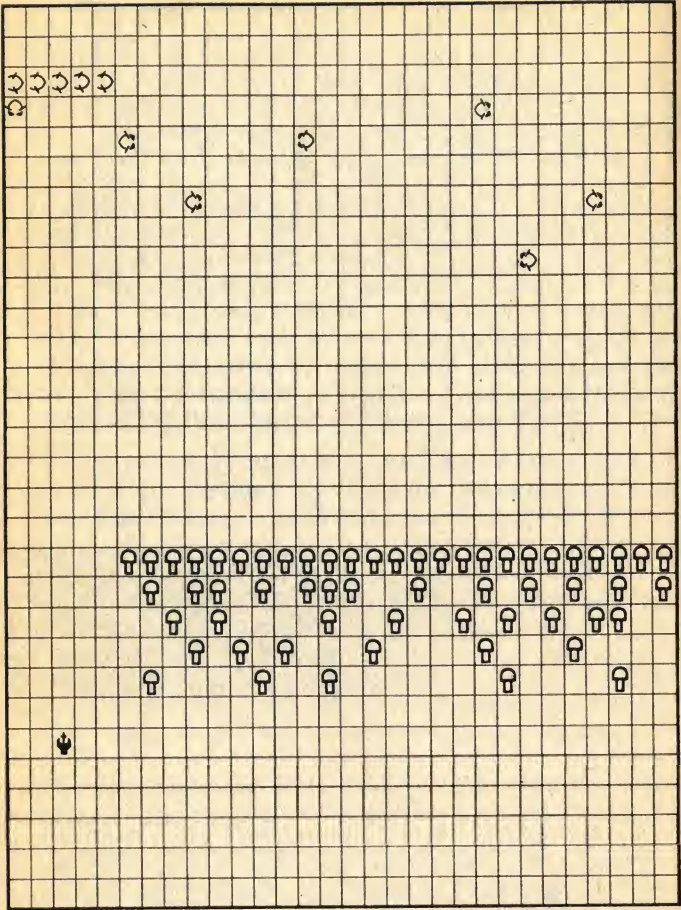
Fig. 25 ULTIMATE BLOB FORMATION

Fig. 26 OPTIMAL BLOB FORMATION



Step 5: Over the Top: Shooting for Breaking a Million

At any point, the Blob strategy can be doomed if you fail to keep the required number of Mushrooms in the infield. With practice, you can stave off the attack and achieve incredible scores.

If you persist and get to 860,000 points, you will notice that the Spider suddenly reverts back to its old pattern of rising again to the twelfth level in its forays across the screen. All your valiant efforts to maintain your Blob up to this point turn futile as the Spider voraciously gobbles up the fruit of your previous farming. It becomes impossible to keep enough Mushrooms in the Blob to prevent the release of the Fleas.

When Franz Lanzinger and his friends came up against this impasse, they were not to be thwarted. They had their sights on the magic million mark, and no mere "flea in the ointment" would stop them. Mulling over the problem for some time, they finally flashed on the solution.

They remembered that in the first attack wave at the opening of a new cycle, the CENTIPEDE comes out whole, a continuous chain of 12 links. As important, they recalled that only during this attack wave, and no other, will no Flea ever appear. No Fleas mean no Mushrooms to violate the purity of the empty field they had worked so hard to clear. Moreover, they also remembered that any attack wave in which you are killed is repeated.

Putting these observations together, they devised yet another brilliant strategy. Sometime before you get to 860,000 points, you wait until you get completely through an attack-wave cycle, and the first wave starts anew with an intact CENTIPEDE. At this point, you **deliberately destroy** your Blob, shooting out every Mushroom in it until the entire screen is devoid of even a single Mushroom. If you are the skilled player required to execute this, you will avoid letting any stray shot wander up the screen to prematurely divide the CENTIPEDE.

You will now focus on hitting a Spider, for 900 points, every 5 seconds, allowing you to accumulate at least 8,000 points by the time the CENTIPEDE gets into close range.

At no point, however, do you shoot the CENTIPEDE. It will come down all the way to the bottom. As soon as it hits the bottom, it will start back up again, rising to the sixth level, then back down again. Each time it touches bottom, a single link will break off from it so that after the first contact with the bottom, an 11-link chain and one single link results. Each time the chain hits bottom, a new link will be cast off from it. You do not shoot any of these links, concentrating only on continuing to rack up 900-point Spiders. As more and more isolated heads break off from the chain, it becomes progressively harder to dance and weave around them.

The object is to get at least 12,000 points and earn a bonus Shooter before your inevitable death. In this way, despite your apparent suicide, you stay alive with the extra gun you've just earned.

Why commit suicide? Why not finish off the CENTIPEDE? Because the ultimate object is to avoid making Fleas come down to plant their unwanted Mushrooms in the field. This can only be done by staying in the first attack wave. The only way to stay in the first attack wave is to sacrifice a life so it will repeat. After your death, you will see the same 12-link whole CENTIPEDE start out from the top on its long journey to the bottom. You'll be able to go for Spiders and Scorpions, earning enough points for the extra life. Keep this cycle going and you can get to a million.

A further refinement of the permanent first-wave tactic is to plant a single Mushroom on each side at the second level just above the bottom. This can be planted from two to about eight columns in from each side wall. Such a perfectly placed Mushroom will have the unusual consequence of keeping the CENTIPEDE intact even after it hits the bottom level. For some reason, the only way for the computer program to "know" that it's time to break off the tail end is to "see" when the entire CENTIPEDE fills the bottom level. With the judicious planting of the single Mushroom, what happens is that the CENTIPEDE starts back up before its entire length is on the bottom level. This clever little trick has purportedly enabled one of our magicians to pull 60,000 points out of his hat during this single attack wave.

When you get to 996,000 points, you'll see that the machine goes haywire. All of a sudden, it sounds off a bugle charge for

each and every target you destroy, be they Spiders, Fleas, Scorpions—even the lowly Mushrooms. If you had less than six bonus Shooters, you'll get one for **each** target until you do have six.

You remember that you can only have a maximum of six Shooters in reserve at any time. Still, the bugle charge sounds for every target hit after that point is reached. It's keeping tabs on you, tallying up one demerit for each bugle call sounded.

The machine counts up your demerits and simply debits your account one bonus Shooter for each. If you hit, let's say 18 targets before going over a million, and two of them were used to bring your reserve to capacity, then the machine **subtracts** 16 bonus Shooters from your earning potential. You would need to score 192,000 points before you could start earning another credit for a bonus Shooter ($16 \times 12,000 = 192,000$). Those six Shooters you have after you turn over a million are all you'll get until you reach 204,000 points.

But the best way to minimize the damage is to hit as few targets as possible to go over the top. If you went only for 900-point Spiders, you would score those 4,000 points by destroying a minimum number of targets—five, to be exact. Five targets would only result in a 60,000-point debit ($5 \times 12,000$) at most, and you would still have six bonus Shooters to get them there, a more than ample supply. In this way, you minimize the toll the machine takes.

Of course, shooting at the Spider only is not possible except in the Blob method, where the chain takes so long to get to the bottom.

Some people feel that using the Blob method is almost cheating. They see it as not playing by the rules of the game, as not playing the way you should play.

No doubt the inventors of the Blob method took ironic pleasure in outwitting those at Atari. The pleasure comes not so much from beating them at their own game but from creating another way to play the game that in no way requires any change in rules. Calling these fellows cheats does them a disservice, if not an injustice. You would no more want to call a grandmaster at chess a cheat because he devises a completely original tac-

tic to vanquish his opponent. Call these innovative lads CENTIPEDE grandmasters and you'd be doing them justice.

THE FLEALESS CENTIPEDE GAME

Readers of the Blob method will recall that it's necessary to abandon your Blob before 860,000 points because the Spider again begins to eat the Mushrooms up through level 12. The new strategy to get you over a million points was to wipe out the Blob and stay in the first attack-wave cycle. Since no Fleas ever fall in the first wave and the first wave will continually repeat itself so long as you always give up your life before finishing it off, it's possible to permanently prevent Fleas from falling and planting Mushrooms anywhere on the screen. An empty screen prolongs the CENTIPEDE's advance, buying you the time to score enough points from Spiders and Scorpions to earn back at least one extra Shooter. The extra Shooter then replaces the Shooter you sacrifice in order to stay in the first wave.

As you might have seen, staying in the first wave is not a tactic that must wait for 860,000 points before it can be put to effective use. On the contrary, it even allows you to dispense with the Blob strategy altogether. Instead, you stay in the first wave from the very beginning of the game. Clear all the Mushrooms that appear in the first screen and you're ready to play Flealess, if not flawless, CENTIPEDE. Refer to the tactics at the end of the previous section on the Blob for further pointers.

You completely alter the nature of CENTIPEDE by keeping the Fleas out of the picture. The frantic pace is gone. The game slows but remains as challenging. You live on the edge of each bonus Shooter, making sure you get enough points to keep at least that vital one in reserve.

Some people might feel that it sounds boring. In fact, you score points at a snail's pace next to either the conventional or Blob strategy. The game takes a lot longer to play to achieve equivalent scores. Theoretically, an advanced or expert player might be able to use the tactic and play forever. Practically, it would take forever.

THE SIDE FEED CENTIPEDE GAME

The Side Feed attack is the essence of CENTIPEDE, the game at

its purest. All the features of the game are concentrated and distilled into a 100-proof challenge. A heady brew it is, not for the weak of mind or heart.

This is the snake pit of CENTIPEDE. There is no greater thrill in CENTIPEDE (nor in any other video game I know of) than entering into the hell of the Side Feed attack and coming out alive.

The Side Feed attack is no mere offspring of the parent game. It's a full-grown mutant, a game all to itself.

In this way to play CENTIPEDE, you adopt the tactic of staying in the first attack wave to keep the Fleas out of the game. Unlike the Flealess CENTIPEDE game, here you do not bother to clear the Mushrooms. You want the CENTIPEDE to advance as quickly as possible because this game doesn't really start until the Side Feed gets triggered.

The object is to fight off the links for as long as possible. But it's a suicide strategy from the start because you have no intention of cutting off the attack by finishing off the last link. You literally invite the links (and Spiders, of course) to keep coming and willingly take them on until the death. When, sooner or later, you are vanquished, you spring back to life, going right back into a new Side Feed attack by again purposely letting it get triggered. You keep up this cycle, earning as many bonus Shooters as you can and playing until you finally run out of them. The object is to get as high a score as possible.

Practicing the Side Feed game is an excellent way to sharpen your shooting skills in general and your ability to fend off the Side Feed attack in particular. Whatever your level, you would do well to devote every third or fourth quarter you spend on CENTIPEDE to the Side Feed game.

THE THREE-MINUTE CENTIPEDE GAME

Skilled players of any arcade game are capable of holding down the machine for some time on a single quarter. Your early investment finally pays off in the long run. It's only fair that you're getting the most for your money.

Atari, the manufacturer of CENTIPEDE, saw a possible solution to this problem. They decided to organize a national tournament

for CENTIPEDE players in which the participant would go for high scores in a fixed time period. Thus was born the 3-minute CENTIPEDE tournament, held in Chicago, Illinois, in October 1981, during the annual convention of the Amusement Operators of America.

Atari went to some trouble to standardize the 3-minute game. They reprogrammed all the CENTIPEDE machines used with a built-in timer that automatically ended each game after 3 minutes. In place of the register for Player 2, they displayed it with a visual clock that counted down from 3 minutes so that players could be continually aware of how much time was left.

Whether this aided one's strategy or merely added to already unsettled nerves could be argued, but at least the timing method was eminently fair and democratic.

1. The Rules

Ideally, you play with a friend or group of CENTIPEDE fans and take turns on a machine. One of the others times your game using a watch with a second hand. He then times out a full 3 minutes, looking at your score exactly at the moment your time is up. You have the option of asking him to call out every time 1 minute passes if you wish to use the information to pace yourself.

Time continues to run out even during the intermission following the loss of a life. There are no changes in the rules of game play other than that you cannot play for more than 3 minutes. Your score in the register at the end of 3 minutes is your score for that game. You can play a series of games, making the average score over the number of games played determine the winner.*

2. Risk Taking

In the 3-minute game, you purposely pursue risk, while in the long game, you purposely avoid it—a key difference in the approach to these two styles of CENTIPEDE play. Avoiding losing guns, that is, avoiding taking chances, may not get you the big points you need. There is no disadvantage in having all your

*See Section Five, How to Run a Tournament.

guns left so long as you've taken the maximum amount of chances for the maximum amount of points. There is also a significant drawback of losing a gun, namely, that the clock keeps ticking off precious seconds during the interval the game stops to count up your Mushroom kills and replace the poisoned ones. It's all part of the fun and excitement of the 3-minute game.

3. Tactics

Generally, you try to wipe out the chain without splitting it up. Therefore, you don't want to take random shots at it very high up on the screen. You want to wait until it gets close enough to wipe out the whole chain with a clean kill. Look for Mushrooms in the infield that will set up the clean kill. It's even better to use a side wall so you can concentrate on clearing out the infield Mushrooms to keep the Fleas coming.

To distill a piece of essential advice for the 3-minute game, shoot chains only on a vertical advance, never on the horizontal. This advice does not hold for single heads, which can be shot at any time.

Starting with the second attack wave, Fleas start coming down, and you must nail every Flea for the 200 points. It's preferable to shoot the Fleas as close to the top of the screen as you can. This will prevent too many Mushrooms being laid in the infield Zone to cut off the Flea's attack.

Most of the time, you don't want to sacrifice the 900-point Spider to any other option. Fleas, therefore, should be momentarily ignored when it's time for another Spider. In rare instances, however, you might take out the Spider at a distance, earning only 300 or 600 points. For example, if a Spider's hanging up near levels 7-12 but you have a CENTIPEDE coming down in a perfect setup, you're better off taking a passing or distant shot at the Spider on your way by and going for the whole chain. This is especially true when the chain is 10, 11, or 12 links long.

Your best scoring opportunity is to keep the Fleas coming. To ensure this, you must make sure the infield has fewer than five Mushrooms up to 20,000 points and fewer than nine after that. Because Scorpions cannot appear while the Fleas are still falling, success with the Fleas means that you are foregoing the

potential Scorpion points once you get into the fourth attack wave. Fleas are the preferred choice between the two targets, in part because you can be skilled enough to hit them both reliably and continuously. (Remember, they do not speed up until 60,000 points, a score not likely to be reached in the 3-minute game.)

To sum it up, you want to hit everything on the screen. Every time the Spider comes out, you want to get 900 points. You want to make the Fleas come down every second and shoot each one, and at the same time you want to hit the CENTIPEDE.

4. The Perfect Three-Minute Game

By introducing a time limit to CENTIPEDE, the entire complexion of the game changes. Unlike the long game, where the object is to stay alive as long as possible and accumulate the most number of points, in the short game, there is a theoretical limit to the number of possible points you can score. There are just so many Spiders, Fleas, and Scorpions that can turn up as potential targets, just so many Mushrooms you can wipe off the screen, just so many attack waves you can clear. We know, for example, that a Spider appears about 4 seconds after the last one has been shot. Dividing four into 180 seconds (e.g., 3 minutes) gives us 45, the theoretical maximum number of Spider kills that are possible in the short game. If every one of these Spiders were nailed the instant it appeared (for 900 points each), you could theoretically score 40,500 points from Spiders alone. Similar calculations of "perfect" scores for the other targets are not as easy to determine, but in practice, top scores in the 3-minute game are usually in the 50,000-60,000 range.

As far as I know, nobody has ever been able to get through the entire attack-wave cycle in 3 minutes. This may not be possible. Remember, the first attack-wave cycle includes those extra slow waves up to 40,000 points.

5

FOR FANS AND FANATICS ONLY

This last section of the book covers topics that true devotees of the game will relish. It ranges from the exotic to the esoteric while including the practical as well.

BUM CONTROLS

The Trak-Ball is a very elegant device in that it potentially gives you very fine-tuned accuracy over the movement of your Shooter. However, the "feel" of Trak-Balls tend to vary from machine to machine. Some are perfectly fine-tuned, while others just don't respond. They can be sluggish, jumpy, erratic—a variety of less than perfect conditions.

Trak-Balls are also known to malfunction in their ability to move the Shooter. Sometimes the Shooter will stay stuck in the bottom level (or elsewhere) no matter how much you move the ball. Another common problem, especially with the brand-new units that haven't received much play, is that the Trak-Ball will be stiff. You can tell a stiff Trak-Ball because it won't rotate more than once or twice when given a good roll. Optimal Trak-Balls have a very fluid feel and motion. A single pass across its top should send the thing spinning for a couple of seconds.

How do you know whether a particular Trak-Ball is optimally adjusted with perfect fine tuning? After you play on different machines, you'll immediately sense which Trak-Ball is best. If you have a choice, always play on the machine whose Trak-Ball gives you the best feel.

By the way, Trak-Balls are known to sometimes catch a piece of your palm in the little crack between it and the hole into which it's set. The Trak-Ball "pinch," as it's called, is painful but short-lived. As with most sharp pains, it's the sudden surprise that smarts as much as the pain itself.

One of the most frustrating things to encounter is a "sticky" FIRE button. By sticky, I don't mean from ice cream residue but to a delay between the time you press the FIRE button and the actual firing of the shot. Ice cream can be wiped off, but this delay is a permanent nuisance. Once you've discovered a sticky FIRE button, it's a pretty good idea to steer clear of that machine until you know it's been fixed.

How do you know if the firing rate is off? Once you've played on a good machine and you've gotten the feel of the correct firing rate, a bad one stands out like a sore finger (and will probably give you one).

The most important thing to remember about faulty controls is that they can only throw off your game. Don't play a machine with defects even for the single game on the quarter you already dropped. Better to give it up as lost. CENTIPEDE is a game in which timing and rhythm are essential. Stay away from controls that will make you lose that hard-earned skill.

THE INNER SECRETS OF THE VANITY TABLE

The CENTIPEDE Vanity Table allows for the display of eight individual high scores. The top three scores are held in the machine's memory from day to day even if the unit is unplugged (cut off from a power supply). The remaining five high games (e.g., numbers 4-8) are only held in memory until the unit is unplugged.

It is the usual practice of arcade operators to shut their machines down overnight. The Vanity Table, therefore, when displayed the first thing in the morning, will show only the three all-time top scores. The previous day's high scores, which had occupied ranks 4-8, will have been erased, and those positions start the new day with a clean slate.

The earlier in the day you play on a particular machine, the more likely that you will have the pleasure of being informed that your score is a "great score" and be invited to enter your initials. In fact, the first five games played on the machine will all be entered into the Vanity Table. If you're a rank (or unranked) amateur who needs a little ego boost, it pays to get up early in the morning!

On the other hand, seeing those three top scores day after day can be a real "bringdown." And to rub salt into the wound, the top three tend to get even bigger with each passing day. Try not to get discouraged, then, when you come across a CENTIPEDE with top scores in the hundreds of thousands. Remember that those who've attained that skill level have put in many months of practice.

The first time I played CENTIPEDE was in a store in a suburban mall. The machine had just been placed there and was in mint condition. Because I was among the first to play as well as to practice, within a week I found my initials moving "up the charts." I was flabbergasted when I returned and my name and previous high score was still up in lights. I couldn't figure it out. After several more days in the coveted top three, I guessed that CENTIPEDE must have some permanent storage device that kept me in the limelight.

For those of you good enough to command any portion of the permanent or temporary Vanity Table, you might want to use the opportunity to enter something other than your initials. I've seen players vent their frustration by sending messages to the computer, not always so nice. I will demonstrate the possibilities with a more upbeat inscription.

153,208	I
86,453	LUV
71,912	CEN
30,045	TIP
28,676	EDE
25,512	A
24,415	HO
22,915	LOT

HIGHEST SCORE ON RECORD

The highest score that can be entered in the game's score register is 999,999. This six-digit number also fixes the limit of scores that can be entered into the Vanity Table.

Therefore, if you were to score an even million, the index would show you having achieved a grand total of exactly zero points. You see, the score turns over at a million, and your score starts

again from scratch. If that seems like a raw deal, consider further that you can wind up with an actual score of, let's say, 1,025,695, and the dumb computer credits you with a flimsy 25,695 points. That's not even enough to invite you to enter your initials into the Vanity Table. Ain't no justice, is there? Not that there are so many of us breaking a million that we should complain.

One fellow who did, however, is Franz Lanzinger, the crack CENTIPEDE ace from Mountain View, California. (That's Atari territory.) In fact, he's tallied the highest known (and validated) score on record—a staggering 2,999,999 points. Six straight hours on December 6, 1981, at the Central Park Family Fun Center in Mountain View.

When I first heard that score, I figured it had to be a public relations hype—I mean, come on, just one measily point away from a cool 3 million. That could be no accident. No accident it was, either, because Franz purposely stopped at 999,999 points after turning the scoring register over **twice** before. He could have gone on but figured six hours was enough to call it a day. He stopped short of 3 million so that he'd still be able to register his 999,999 into the Vanity Table. Someone that good has a right to a little vanity.

By the way, you may have wondered how any earthly mortal actually could score 3 million points. Franz did have a little help from his friends—the rest of those inspired geniuses who devised the Blob strategy (see page 112). You see, the secret of Franz's 3 million points was using the Blob strategy.

FREE PRACTICE

The Attract Mode in any video game tries to give you an idea of how the game is played. The CENTIPEDE Attract Mode is the most innovative one I've come across. It shows you a typical game in progress, with the computer guiding the player's Shooter. You see all the elements of the game play as though you were watching a real game. Even more importantly, the game develops in real time, changing situations according to what events occur on the screen. The game continues until the player's Shooter is destroyed by any one of the enemies (CENTIPEDE, Spider, or Flea), at which point the Mushroom field is repaired and a new Shooter begins firing at the next wave.

This literally goes on until someone drops a quarter into the machine. Even at that, when that player's game is over, the game picks up in the Attract Mode at exactly the point where the player has left off. In other words, the pattern of Mushrooms planted on the screen is the one that was on the screen when the previous player finished. Moreover, the game picks up in the same attack wave.

One disconcerting drawback to this innovative idea is the presence of the Vanity Table placed right smack in the middle of the Mushroom field. It cuts out of the field a "hole" in which no Mushrooms are planted but through which CENTIPEDES advance. Since you never encounter this situation in a real game, it can be somewhat of a distraction. Nevertheless, if you ignore the Vanity Table, there is much to be learned from the Attract Mode.

It gives you a wonderful opportunity to approach any unoccupied CENTIPEDE machine at any time without having to look over someone's shoulder. Since the Attract Mode is free, you can get a real feel for the basic structure of the game and its elements before ever having to drop a single quarter.

Even if you're already familiar with CENTIPEDE, it's a good idea to use the Attract Mode display to make observations about the game. Because CENTIPEDE is such an intensely involving game, there is very little time to think over tactics and strategy while playing. The Attract Mode in CENTIPEDE shows every essential element of the game play you will encounter. Using it in conjunction with this book can very quickly give you a leg up on the way you play the game.

HOW TO RUN A TOURNAMENT

If you're like most CENTIPEDE players, you probably have a favorite place to play. It may be an arcade or a neighborhood bar or restaurant. Wherever there's a machine, you have a group of fans and aficionados, people who form the nucleus of serious players of the game. There's nothing like a good contest to raise people's spirits. It's a great way to get to know a lot of those anonymous initials you see on the Vanity Table.

For practical purposes, we'd recommend that any tournament involving CENTIPEDE be structured around the 3-minute game.

Tournaments can be more or less complicated, depending on how you determine elimination.

The simplest and most democratic tournament would be an open field in which each player gets a single chance to play and his score is compared to all other entrants. This type of tournament can be run over any specified period of time but requires somebody to be on hand constantly to validate scores as well as to time each player. A practical tournament would be confined to a single day.

Naturally, it's a good idea to engage the cooperation of the machine's owner or operator in getting the contest organized. Generally, you'll find the owner or manager happy to go along but not all that eager to do any work. So it's your baby.

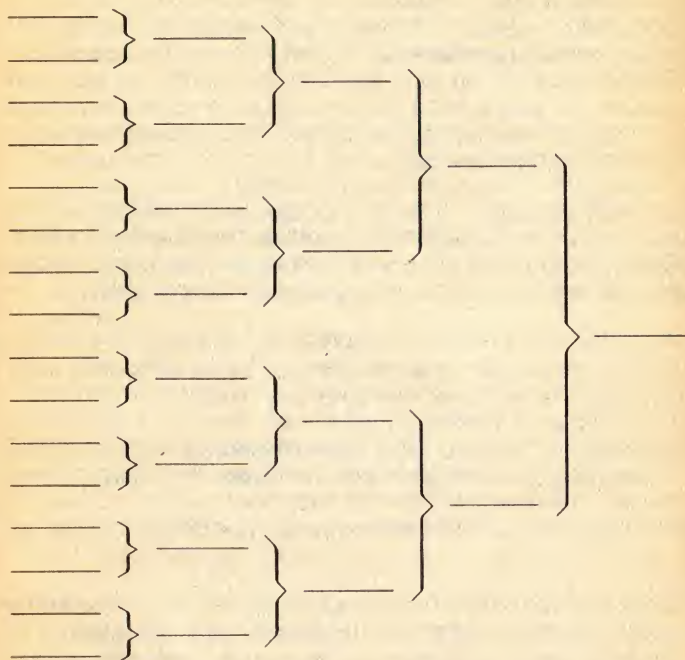
Some sort of promotion should precede the day of the event by several weeks, with a sign-up sheet for those who plan to participate. Telephone numbers allow you to call each interested player to work out details ahead of time. You may have a nominal entry fee (e.g., \$2) in order to measure the seriousness of participants as well as to pay for the games ahead of time. There's no worse sort of contest than one in which you have to be digging for quarters when your mind is better focused on the game.

Once you have all your entrants, be it 6 or 60, you then set up a sheet with all the names paired off randomly. Each pair constitutes a match. Players play in rounds consisting of one 3-minute game each. The winner is the one with the best score in that round. The first player to win two rounds wins the match. Losers drop out of the competition, while winners go on to be matched up again with other winners, playing off against each other until the final match determines the top player.

The number of entrants are limited by the number of machines available. If there is only one, you have to figure that each match will take an average of 15 minutes. That's only four matchups an hour. With 16 entrants in the original field, it would take about 4 hours to complete the contest. You can make adjustments to fit your specific situation. Figure 27 is a tournament ladder that can help guide you. If you have more entries, you can extend the ladder. If time begins to pose a problem, you can cut down to a single elimination tournament in which

Fig. 27 TOURNAMENT LADDER FOR 3-MINUTE CENTIPEDE

ENTRIES



players are pitted against each other for a single round, not the best two out of three. That sort of sudden death is not very satisfying, and it might be better to extend your tournament over more than one day to accommodate a more crowded field.

CENTIPEDE AS A SPECTATOR SPORT

One of the best ways to learn how to play any video game is to look over the shoulders of an experienced player of the game. This serves a very practical purpose but usually leaves you just itching to get your hands on the controls.

There are some video games, few and far between, in which it's

possible to actually prefer watching someone else play. CENTIPEDE is one of them. DEFENDER is another. If you have the good fortune to run across an advanced or expert player, don't lose the opportunity.

I'm not talking about watching in order to improve your own game but for the pure pleasure of it. I've used the analogy of the Olympic athlete on occasion in this book and for good reason. CENTIPEDE, like many Olympic events, is a solo sport. When you can see someone who excels engaged in the sport, performing at peak levels, you're in for quite a thrill.

The more you understand a sport, understand the rules that structure its possibilities and limits, the better eye you can bring to the viewing of it. But it's also possible to recognize a true artist at work knowing very little about it. I had that experience most clearly watching Nadia Comaneci earn her gold medal in the Olympics. Though I knew almost nothing about gymnastics, I knew I was watching something very special.

Don't lose the opportunity to watch a master of CENTIPEDE engaged in his sport. Seek it out. No matter what your own level of play is, you'll find it was worth the trouble.

PLAYING CENTIPEDE AT HOME

Atari, the manufacturers of the CENTIPEDE coin-operated arcade game, will no doubt come out with a version of the game that can be played at home. What is not clear, at least at this writing, is exactly for which of several possible Atari home video game systems a home version will be available. It's unlikely the game will be redesigned for the Atari Video Computer System currently on the market. Its limited graphics and memory would make any version of CENTIPEDE on that hardware system pale next to the original.

However, Atari has two models of personal computer on the market, the Atari 400 and the Atari 800, which are more likely candidates. Atari will also be releasing a new model of the original Video Computer System in 1982. As this system is rumored to be based on the hardware of their personal computers, it's a good bet that a CENTIPEDE cartridge will be available for it as well.

You should realize that any home version will have to depart from the original in at least one crucial way. The arcade version is played with the TV monitor oriented vertically along its longer axis. All home video games are structured by the limitation of using a TV set whose longest axis is oriented horizontally.

These and other changes will no doubt make the home version a far cry from the original. Some fans can't bear to be unfaithful to their true love. Fanatics should know that you can pick up the authentic "arcade" version of CENTIPEDE—the real thing you're used to playing—for a couple of thousand bucks.

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